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THE SENSE DENIED AND LOST.

BY

THOMAS BULL, M.D.

Author of

'HINTS TO MOTHERS' AND 'HINTS ON THE MANAGEMENT OF CHILDREN'

(for the last eight years of his life deprived of sight)

EDITED BY REV. B. G. JOHNS

CHAPLAIN OF THE BLIND SCHOOL, ST. GEORGE'S FIELDS.

LONDON

LONGMAN, GREEN, LONGMAN, AND ROBERTS.

1859

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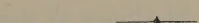
INTRODUCTION

BY

THE EDITOR.



BLINDNESS is a condition which few but those who practically know it can ever comprehend. The cloud which descends on the physical sight,

"And renders all the world a darken'd maze,"

is far more deep and absolute than we are at first inclined to imagine. The loss of mere bodily vision alone is a fearful calamity; but far deeper is the blow when accompanied by that inner dullness and deadness to external impression which so often follows the bodily affliction. "No man becomes blind," says the proverb, "by merely shutting his eyes; nor does a fool always see by opening them;" inasmuch as real

blindness brings with it far deeper and heavier deprivations, with which the eyes have little concern. The reader may know what it is to be plunged suddenly into darkness for a few minutes, in a railway tunnel, — and disagreeable enough it seems. But he does not know, nor can he form the remotest idea of, what it would be like if such blackness of darkness were to be continual. He does not know what it is to lose sight for ever of all pleasant faces, and beautiful forms, of God's sunshine, of silver moonlight, of all the fair things that live and grow on the earth. He does not know what it is to *hear* of things which he could once *see;* — to be driven to *feel* painfully and slowly what his eye could once rapidly survey; to miss the kindly smile on the face of those he loves, and the kindling answer of eye to eye. For him such words as

"Et respondebunt lumina luminibus"

have no meaning. "The face of a man that answereth to his friend," for him has no message

unless he can touch it, and but little even then. It is true that the sense that is gone tends to render those that remain eminently acute; but it must not be forgotten, that the blow which destroyed one sense, too often shatters all the powers both of mind and body. The remaining senses labour, and labour hard, to supply the deficiency; He who made man has in His mercy so decreed it; but, nevertheless, in spite of all acuteness of hearing, touch, and general perception, the blind man is still blind. He has suffered a blow which true religion may, by God's grace, enable him to bear nobly and aright, — but which still, in a greater or less degree, cuts him off from the rest of mankind. If he is an educated, pious man, like the writer of the following pages, — especially if the blow fall at a comparatively late period in life, — the calamity will soon be borne with patience and equanimity, though not always with the cheerful resignation it educed in the character of Dr. Bull. Many men would have met such a blow with sullen repining and discontent.

He met it, after a time, with manly fortitude and resolution; determined to find light in the darkness; and the Divine presence, where most men find only gloom, sadness, and oppression. He seems to have realised, in fact, as most of the really religious blind do, what the greatest among them long since felt, that the shadow which overwhelmed them arose not so much from the dullness of mortal vision, as the shadow of the Divine wings. This was a grand thought, which Milton has clothed in the grandest and most sonorous of all languages. "Nos cæcos," he says, "ab injuriis hominum non modo incolumes, sed pene sacros divina lex reddidit, divinus favor; *nec tam oculorum hebetudine quam celestium alarum umbra has nobis fecisse tenebras videtur;* pietas illustrare rursus interiore ac longe præstabiliore lumine haud raro solet." That the gloom of the Blind man's life should not spring from mere dullness of vision, but rather from "the shadow of the Divine wings which overspread him," is indeed a conception worthy of the author of "Paradise Lost." It could not have

fallen from a petty, mean, or uninformed mind; but is a noble thought, expressed in noble words. His own account of the gradual decay of his eyesight is very touching. "It is now," he says, "about ten years since that I perceived my sight grow dim, and at the same time my spirits become faint. Even when I sat down in the morning to read, my eyes gave me considerable pain, and refused their office till fortified by moderate exercise of body." "But," he again adds, "while the Divine hand leads me through life, I willingly give up the faculty of vision, as His will is." "Even yet," he says,

> ——————"I argue not
> Against Heaven's hand or will, nor bate a jot
> Of heart or hope, but still bear up and steer
> Right onward."

Such, in a great measure, seems to have been the case with Dr. Bull through his eight years of darkness. His trial, a sharp one, he bore nobly and bravely, as being the ordinance of One who was wiser and more gracious than himself. It is true that he escaped many trials which

often fall to the lot of the blind. He had kind and numerous friends; he had the warmest sympathy; but, above all, he had the deep love of an affectionate wife, which lasted through his long hours of darkness, and still survives.

Still he had, as every blind man has, much to bear. He looked for consolation and found it,—where God still leaves it for all who will seek,—in intercourse with Him; in reading His holy word; in the world of nature; in the song of birds; in the voice of sweet sounds; in everything that is gentle, pure, and true. He sought out with kindly generosity those who suffered under the same deprivation which had befallen himself; and did all in his power to give them eyes—if not of body—at least of soul and mind.

What he endeavoured thus kindly to do for others, God did in His mercy for him. Throughout all his trial the Divine presence seems never to have forsaken him. What he was so deeply anxious for others to realise, he was often enabled to feel most fully for himself. Having lived a life of practical religion, he was practical to the

last. It never failed him when the sharpest trial came.

Such an example as this must be of benefit to all who take an interest in what is true, and just, and upright. The following work, if Dr. Bull's life had been spared a little longer, would doubtless have been rendered more complete and perfect in some respects,—but enough remains to show the working of an honest, contented, and humble mind, under circumstances of heavy affliction, still maintaining its trust in God.

B. G. JOHNS,
CHAPLAIN.

BLIND SCHOOL, SOUTHWARK:
June 25, 1859.

PREFACE.

It is right that the Public should know the circumstances under which this little book was commenced and finished.

The Author had clearly sketched out the plan of the work; but the whole of it was composed and dictated after perfect blindness and almost helplessness had set in, his mind, which was full of light and activity, enabling the author to forget his state of darkness and bondage. He wrote to give himself an occupation, and in the ardent wish that his labours might excite more sympathy and activity in behalf of his fellow-sufferers.

It may be interesting to some, to know how eight years of blindness were rendered endurable, and even happy; and what employments could possibly cheer and interest in such a state. Composition, notwithstanding its attendant difficulties, was his chief occupation. Music, too,

solaced many a weary hour; and having a correct ear and taste, he conquered all its difficulties, and played sweetly many of the best airs; the notes being read to him. Sacred music was his great delight, especially on the Sabbath evenings; and this was a part of the service of the Church from which he derived great consolation.

He could write clearly by the help of his writing-desk (Wedgewood's). He often wrote prescriptions for old friends and patients who occasionally consulted him; but as he always said, "that it worried his head" to use his machine, and think of what he wished to write at the same time, this can hardly be ranked among his amusements. He rarely used the pen himself, and latterly, only for necessary signatures.

Conversation, in which he excelled, was a source of peculiar happiness to him. He loved the society of his friends, and his cheerful smile and kindly greeting will long live in the memory of many of them. He was often the life of the social circle, even after he had ceased to perceive their answering look and smile.

Reading from Moon's clear and easy type occupied many an hour; and hymns and the different portions of the Bible were his constant solace. They were always within his reach; always placed by his bed side, and when he awoke, as he constantly did at a very early hour, they were immediately resorted to.

Exercise in the open air took up a great part of the day. Drawn in a chair in a quiet part of the Downs, all the country sounds and smells were delightful to him. The fresh air itself was enjoyment. He would walk with the help of a strong arm. The song of the birds, especially the thrush and lark, soothed and cheered him, and he soon distinguished their different notes.

Another great recreation was in hearing others read. He was quick in distinguishing accurate tones, and took great interest in, and was always fully informed on the various topics of the day. He had also always some book in hand, to be regularly read through.

Another of his occupations was teaching the

blind to read. He sought them out wherever he was staying; and by means of small brass letters, on Moon's System, enabled many a solitary person to read the word of God for himself. Of this the Appendix contains many instances, as recorded in his private journal.

Thus, while it would have been only natural had the spirit yielded to the body, and constant depression followed, the Christian's faith and hope upheld him; and while he cheerfully said, "The cup which my Father hath given me to drink, shall I not drink it?" he also said, "I will work the works of Him that sent me while it is yet day." Many years of professional toil had told upon a naturally excitable and energetic mind. The frame-work gave way, and an overworked brain induced total loss of sight, and almost total loss of limb. To the bereavement of his eyesight his devoted use of the microscope had doubtless contributed. Sand was brought him from all parts of the world, and this he searched, and discovered and "put up" for inspection many of the most minute and beautiful shells.

He never spared his strength for the poor, thirty of whom would constantly be seen by him of a morning before he went to his wealthy patients. He never scrupled to rise from his bed at the call of the poor, or to turn his horses' heads back again, if wanted by any poor patient after the day's round of professional visits was over.

Not only did his patients benefit from his sound practical judgment, and large experience, but his *sympathies* were warmly exercised in all their anxieties and sorrows. Many of them will ever affectionately remember him as the *Family* FRIEND, as well as the Family Physician. He was truly a practical man, and his remark to his own beloved and valued clergyman, the Rev. J. Vaughan, of Brighton, who visited him so kindly and constantly in his last sickness, and who often in the sick chamber, as formerly in the church, was the *human* medium of Divine support and comfort, "What a practical thing religion is!" proved what a REALITY he now found it.

He expressed himself in the last weeks of his life, as *most* grateful for his sabbaths at Brighton. In the week he looked forward to them, and until the fatal loss of limb, was always in his seat at church on week nights as well as on the sabbaths.

God remembered him, and fulfilled his promise, "I will make all his bed in his sickness;" and he found "Him as a covert from the storm, a shadow from the heat, as the shelter of a great rock in a weary land."* He proved the truth of the saying —

> "Affliction has a taste as sweet
> As any cordial comfort."

Into the beautiful and wondrous works of God, which for a time were hidden from him on earth, the happy spirit may now be looking, and fresh accessions of knowledge may be enriching it.

* Isaiah xxxii. 2.

M. B.

BRIGHTON:
June, 1859.

In Memoriam.

A BELOVED HUSBAND.

THY path was one of sunlessness,
But light from Heaven was thine,
That made thee ever onward press
Among the good to shine.

No haze obscures thy vision now,
Thou seest Him face to face,
And 'mid the choir of angels thou
Hast found a resting-place.

His works below thou lov'st to trace,
And as thy knowledge grows,
In heaven *His* power, on earth *His* grace,
With brighter radiance glows.

Thou clearly tracest ALL thy way
Why was thy path obscure;
He led thee on through gloom to day—
Day ever to endure.

Unseen, unheard, I feel thee nigh,
For *holy* love lives on;
It beams immortal in the sky,
When earthly deeds are done.

Thy spirit hath its mission set
To guard *the one* it loved;
Its *loving care* thus lasting yet,
Beyond what time had proved.

Oh, world unseen, how close thou art!
Though we can ill descry
The glorious forms, who bear their part
Around the throne on high.

The curtain drops—one brief good night—
The spirit freed, it soars in light;
We journey on and kiss the rod,
Nor rest, but in the arms of God.

M. B.

Brighton:
May, 1859.

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BLINDNESS.

INTRODUCTION.

THE condition resulting from blindness is little known or appreciated by those who have sight. Strange that claims so powerful and so universally acknowledged, should hitherto have won so little attention in an age so advanced in civilisation as the nineteenth century! Marked, indeed, is the pity felt by all, educated or uneducated, high or low, for the blind man; but whilst such sympathy never fails to the individual object, here it is content to rest, and proves barren and unfruitful to the great mass. To insure a more immediate, deep, and active benevolence, it would seem that the great calamity itself must become either personal or relative. The comparatively small item which the blind form in

society, together with their secluded habits, the limited nature of the efforts hitherto made on their behalf, and the paucity of information possessed by the public as to their condition and wants, may in a measure account for this long indifference and neglect. The little that has been done has been confined almost exclusively to the born blind, and adolescent blind. Noble, disinterested, and devoted, have been the exertions made by an enlightened few on their behalf, in some of the capitals of Europe, the United States, and Great Britain. This section forms, however, but a very small proportion of the whole, and not much has been accomplished for the well-being and relief of the large majority —the *adult* blind — the greater number of whom are indigent and uncared-for, because unknown. I cannot find any work, taking a comprehensive view of this subject. It is the born blind, and the born blind only, of whom they treat. The asylums, confining their charitable efforts to the adolescent, do not reach the adult poor, and the only source from which a limited few in this country derive charitable aid, is from bequests made by a few wealthy individuals who have been personally afflicted.

The causes of blindness are various. The born blind, comparatively few in number, may be expected to remain within their present limits. Purulent ophthalmia in infancy, and small-pox in childhood, formerly blinded their thousands; but in later years, with the advance of science and general intelligence, these numbers have greatly diminished. During adolescence, disease and accident bring about the same result, but in a limited degree. From this epoch, through adult life to old age, the causes are more numerous and more prolific. Besides disease, accidents in mines and manufactories, trades directly injurious to the sight—above them all, the intense ardour with which business is conducted in these days, and the consequent wear and tear of the constitution, particularly the nervous system, are the most prominent sources of this calamity. It is thus evident that while juvenile blindness is yearly diminishing, adult blindness is on the increase. The statistics of the blind are few and imperfect. In Europe, blindness is found to decrease in advancing from the equator to the poles; it being computed in Egypt at the rate of one to three hundred—blindness throughout the East being a far commoner calamity than with us.

For this there are many causes. The dust and flying sand, pulverized and reduced to minute particles, enter the eyes, causing inflammation, which, being neglected, frequently ends in total loss of sight; while sleeping in the open air, on the roofs of houses, and the consequent exposure of the eyes to the noxious nightly dews, is another source of this malady. A modern traveller calculates that there are four thousand blind in Cairo alone. In Great Britain and Ireland there is rather more than one in about one thousand two hundred, which gives an aggregate in this country of nearly thirty thousand. Of these, less than one-fifth are under twenty years of age, the majority of the remaining four-fifths having become blind after this period; for it is a popular mistake to suppose that the adult have once been the adolescent blind; by far the greater majority have never been so. The age at which blindness occurs has a most important influence over the future history of the individual. The born blind, who have never seen the light; the infant, who has not yet had time to learn to see; and the child, scarcely to observe—becoming blind, are dependent for knowledge on the remaining senses which will be largely developed. The adolescent,

deprived of sight, will have gathered much already, during the few years of vision they have enjoyed; and their bodies, being still in a state of youthful vigour and growth, their remaining senses will also share in this natural development. Not so, with those who lose their sight at adult age, and, perhaps, when the body is on the decay, and no such amount of compensation is afforded. The power of the remaining senses will, in some cases, be much heightened, but, with a large majority, afford but little additional aid. Thus considered, the blind naturally fall into three classes—the born blind, the adolescent blind, and the adult blind; an arrangement which will be followed in this work.

To depict these three conditions, to trace the means in the past and present which have been employed for their relief, and to found upon this inquiry such hints of amelioration as its investigation and the experience of a blind man may suggest, is the course proposed to be pursued by the writer. I am conscious that the task undertaken will, from my darkness, be attended with difficulties, from which other efforts were free; though I hope, nevertheless, to surmount the obstacles which lie in my path as a blind man. I

must teach the ear to do the work of the eye; and with the ready help of my kind and gentle secretary, conjoined with the use of my writing machine, I hope to overcome every impediment. I am not only stimulated to this effort by the desire of occupation, but urged by an earnest hope that this work may largely serve the interests of my fellow-sufferers, stricken by a calamity which constitutes one of the greatest misfortunes with which humanity can be afflicted, and which, perhaps, claims more abundantly than any other the commiseration of all.

CHAPTER I.

THE BORN BLIND.

THE term "Born blind" is indiscriminately applied to all children losing their sight, before the eighth year, when adolescence commences. What popular usage has adopted, similarity of condition justifies; for observation proves that the impressions received by children who have seen, cause, between them and those who never could exercise this faculty, but a very feeble difference, which time daily effaces. Thus, those who never beheld the light, or who possessing vision lost it before they had learnt to use it, will form the subject of this chapter.

Those truly born blind are very few in number. Not one case came under my notice during a professional life of more than five and twenty years in London, although physician for the greater part of that period to a "Lying-in-Institution," averaging more than a thousand cases annually; nor do I remember a single one to

have occurred in the practice of a large circle of medical friends. The defect causing the absence of vision in these cases is generally situated in the crystalline lens, and in no way affects the integrity of the brain, except in those rare instances where blindness repeatedly occurring in the same family, an approach to idiocy in the fourth or fifth child is occasionally met with. The causes of blindness in infancy and childhood are various. Within a week or ten days after birth, the new-born infant is frequently attacked with an inflammation of the eye, called Purulent Ophthalmia, a disease quickly destructive of sight, but controllable under skilful and diligent care. This, with small-pox in childhood, has been the source of a larger number of cases of blindness at this period, than any other cause whatever: though such instances are now comparatively rare, and we may expect that they will gradually diminish. Accident, and other forms of disease besides those referred to, may also at this epoch induce this calamity. In all these cases the optic nerve and brain are seldom involved, and the physical and intellectual systems therefore, of such children are not compromised. When, however, the disease commences in the retina, and extends

through the optic nerve to the brain, intellectual feebleness, delicacy of health, torpor, affections of the nervous system, sometimes amounting almost to paralysis, will be manifested in the future history of the child. It is believed, of the 30,000 blind persons in this country, this class numbers only about 2,500.*

Clearly to understand the real position of the born blind, and the difference between them and the seeing, with reference to the world without, it will be necessary slightly to depict those organs by which man obtains his knowledge of it. The senses are the apparatus by which knowledge is gathered and poured into the spirit. They are thus at once the gatherers and the avenues of the mind, or, as John Bunyan quaintly styles them, its gateways; the instruments with which we see, and hear, and smell, and taste, and touch. They are capable of being highly educated; and in proportion to the diligence with which they are employed, will be the degree of their proficiency. No man has ever cultivated his senses as he might have done. The largeness of their intellectual endowment,

* But statistics are most treacherous in this matter.—Ed.

however, is frequently developed by necessity, and in no class is their capacity so fully realised as in the born blind. Into the character of the sense denied to them, of the influence of its deprivation upon the senses bestowed, and upon the physical, moral, and intellectual development of the individual, we will now inquire.

Of the mind, which receives this knowledge through the senses, and of what it knows independently of them, and how far they are controlled by it, it would be beside my purpose to speak at present.

Sect. I. — *The Sense denied. — Sight.*

The human eye is more beautiful in its construction than that of any other of God's handiworks. In the eagle and the hawk, in the gazelle and in the feline tribe, the perfection of the eye is admirable; but in the human eye there is a glory which excelleth these. The spirit speaketh through the eye; the face were dead without it. How manifest this in those whom recent darkness has overtaken! The eye, concentrating every feature in itself, hope no longer shines through it, — it has ceased

to smile, for it was not the lips; the ear now alone listens, not the eye; the frown is no longer from the eye, it is but the brow. How complete this blank where the light has never shone! The eye is constantly exercising a silent, yet most powerful, influence for good or evil over the words, and deeds, and thoughts of men. It is difficult to say how much our early education is influenced by a mother's smiles and tears, her looks of sadness or of joy; and how far the absence of all these in the early culture of the born blind may tend to diminish the degree of sensibility usual with those who enjoy the blessing of sight.

The structure of this organ it is unnecessary to describe. Familiar as I am with it, it would be difficult, without a visual demonstration of its various parts, to convey to the mind of my reader any idea of its wonderful arrangement. It is enough to say, its mechanism is highly interesting, and shows the wisdom of the design with which the whole fabric is constructed. It is so seated and formed as to embrace the greatest possible field of vision. The image of the object looked at, passing through the transparent portion in the front of the eye, called the cornea, is transmitted

through the crystalline lens and other humours, to a chamber at the back of the globe; this is covered by a white membrane or curtain, called the retina, and upon this the image is painted; behind this white curtain is a black one, which absorbs the picture almost as quickly as it is imprinted.

Thus, throughout the day the image of every object that passes before the eye is in that little chamber printed and blotted out. But though the image of the object is there, it is not seen by the eye itself. The white membrane is the expansion of, and therefore the continuation of, the optic nerve, which, passing through an opening at the back of the orbit, is connected with the brain. In the interval of the image being impressed upon the white membrane, and absorbed by the black, the perception of its existence is conveyed by this nerve to the brain within, and there it is really seen, as Dr. Wilson, with graphic power and beauty, says:—"What a strange interest thus attaches to that little darkened chamber of the eye! Into it, the sun and the stars, the earth and the ocean, the glory and the terror of the universe, enter upon the wings of light, and demand audience of the soul; and from its mys-

terious abiding palace the soul comes forth, and in twilight they commune together."

The power of seeing, we can scarcely be said to possess at birth. The calm, complacent, but unmeaning gaze of the babe is familiar to every one. It seems to look at you, but does not see you; and when you pass from before it, its eyes do not follow you. The spirit within has not yet learnt to use its instrument; the eye has to be educated, and the process is a slow one. Some time elapses before anything is seen distinctly, or any idea is obtained of size, proportion, colour, and distance. Again; all persons are not equally endowed with this power, and all more or less neglect to improve it; but where it is fully educated, it becomes almost boundless. Thomas Carlyle pithily remarks, "The eye sees what it brings the power to see." Necessity, moreover, stimulating its diligent exercise, has produced instances remarkably illustrative of its perfection. Hence we read of the sailor who on the look-out can see a ship where the landsman sees nothing; of the Esquimaux, who can distinguish a white fox amidst the white snow; of the Red Indian boys, who will hold up their hands as marks to each other, certain that the unerring

arrow will be shot between the spread-out fingers; of the astronomer, who can see a star in the sky, where to others the blue expanse is unbroken; and of the shepherd, who can distinguish the face of every sheep in his flock. Travelling on one occasion in Switzerland, and passing over the Alps, our guide, a chamois hunter, suddenly descried, at an incredible distance, some chamois traversing the snowy heights of the Jungfrau; to my companion and myself, they were at first totally invisible, and then only discerned as minute, moving specks, sufficiently manifest to demand credence for his statement, and astonishment at the visual power he displayed. But even these examples have been surpassed, as will be presently seen, by the born blind, in the sister senses of hearing and touch; the deprivation leading to their almost preternatural development.

The Deprivation.

The phenomena of light and vision are unknown to the born blind. An imperfection in the wonderful and beautiful organ which has been just described, is the cause of this terrible deprivation. The new-born blind child comes into a

world filled with light and beauty, but it is to him one of total darkness and continued night. In vain for him light spreads beauty over a varied landscape, invests the flower with exquisite loveliness, gilds the clouds around the rising and the setting sun, and bestows its gorgeous colours on the arches of the rainbow : and while to the seeing, this beauteous garb of nature, clothing the woods and the fields, glowing in the ruby, and sparkling in the diamond, is the constant medium of communication between them and the universe around, to him it avails nothing. Its communications are all shut out, and his world is limited to the little circle which he can span with his own arms. All beyond has for him no real existence, and what to others is the ready avenue for knowledge of every kind, to him, through this entrance wisdom is quite shut out.

But great and unspeakable as is this deprivation, it should not be styled, as it so frequently is, by a misnomer. If sight was never possessed, how can it be a lost sense? The remark of the poor deaf and dumb boy of Lausanne, was as truthful as it was touching, when, at eight years of age, a terrible accident had superadded blindness to his former calamity. A sympathising friend,

condoling with him in his finger language, he said, "The light is very pleasant." As a deaf mute, his visual perceptions must have been greatly heightened, fed too as they would be by the lovely scenery around him. Boy as he was, he must often have gazed awe-struck, as the sun rose in all its sublimity above the snowy heights of Mont Blanc, or as it sank behind the distant Jura; and, perhaps, he had often looked with boyish wonder at the clouds mirrored in the placid dark blue Leman at his feet. Light to him had been seen in its highest forms of beauty. It had been the handmaid of his boyhood, and well to him might its remembrance be "pleasing." Not so the man born blind. He is born with four senses; he cannot imagine a fifth. He has no conception of how ideas can be acquired through such a sense as that of seeing. He can have none conveyed to him of that which God has not given him the power of realising. What should we think of a blind poet attempting to describe sunrise, or the aspect of the sea or the desert? There could be little in his words, either original or true; though it cannot be denied that some marvellously clever descriptions have been penned by men who never saw what they described.

"Is it asked why the most Merciful One should thus mar his own work? If we recognise the unwearied interference of God with human concerns, we are required to believe that the possession of a complete set of faculties is a matter in some way of divine appointment, and that, whether the infant shall come into the world with an eye that can collect the sunbeams, or with an ear that can receive the modulations of sound, and with organs adapted for the mysteries of speech; or whether it shall be shut out from all the glory of the landscape, and all communion with mankind, by imperfection in the equipment of its powers, this is far enough from being undetermined or accidental. 'Who maketh the dumb or deaf, or the seeing or the blind? Do not I, the Lord?' God hath meted out to us our every endowment, whether of body or of mind; we are indebted for nothing to chance, —for everything to Providence; and though it were beside our purpose to inquire into the reasons which may induce God to deny to one man the sense of sight, and to another the sense of hearing, we are as much bound to recognise his appointment in these bodily defects, as in the splendid gifts of a capacious memory, a rich

imagination, and a sound judgment, which procure for their possessor admiration and influence. And when there shall come the grand clearing up of the mysteries and discrepancies of the present dispensation, we doubt not that the Almighty will show that there was a design to be answered by every deformed limb, and every sightless eyeball, and every speechless tongue; and that, in regard both to the individual himself, and to numbers with whom he stood associated, there has been a distinct reference to the noblest and most glorious of ends in the closing up of the inlets of the senses, or in the yielding the members to disease. The deaf and dumb child shall be proved to have acted a part in the furtherance of the purposes of God, which it could never have performed had it delighted its parents by hearkening to their counsels, and pouring forth the music of speech; the blind man and the cripple shall be shown to have been so placed in their pilgrimage through life, that they would have been decidedly disadvantaged, — the one by sight, the other by strength. We may not be able in our present darkness to detect the design of the curtailment of each bodily sense or

organ; but it is sufficient to know that every such curtailment is ascribable to the appointment of God, and we know also that it answers ends that could not otherwise have been so well attained. Doubtless you remember, 'as Jesus passed by He saw a man which was blind from his birth; and His disciples asked Him, saying: Master, who did sin, this man or his parents, that he was born blind? Jesus answered: Neither hath this man sinned, nor his parents: but that the works of God should be made manifest in him.' Our Lord, you observe, manifestly implies that there was an object divinely proposed in this poor man's blindness. He had been born blind with a reference to the mighty miracle which Christ was about to work — 'that the works of God should be made manifest in him.'" *

Light received after Birth.

In a few instances, the imperfection already referred to in the organ of vision has been removed by an operation at adult age in the born blind, and sight has resulted. These cases are very remarkable, instructive, and interesting. Science does much in restoring sight in temporary blindness from cataract; but such cases sink

* Melvill.

into comparative littleness when contrasted with the conferring a fifth sense on one who all his life has enjoyed only four. The previous education of such a mind, through the media of touch, taste, and language, must necessarily have been limited. There can have been no conception of the beauties and wonders of the material universe. Groping hitherto through the world in darkness, what a change must now take place in the mental condition of such a being! He has heard of the beauty of the hidden world, and of its brilliant colours, of its prodigal luxuriance, of the vastness and minuteness of his Creator's works; but to him this volume of nature has been hitherto a closed book. To have this opened, to read, comprehend, and enjoy what before conception could never give him, is an event in such a man's history, marvellous indeed. The sighted cannot realise this. A privilege so familiar is undervalued, and the blessings it confers are as little thought of. He alone is in a position to appreciate such a change who, having enjoyed sight, in life's maturity loses it.

These cases substantiate many important facts, amongst others, that the senses help to educate each other, and that it is from this association

between them that correctness and precision in any one sense are acquired. Thus the eye and the hand are beholden one to the other, supplying each other's deficiencies, till both have learned their perfect lesson. I can stretch my hand out to any object before me with certainty, so truly does the eye tell me whether it is within my reach or not; but the eye first learned that facility from the hand, after long discipline and many trials. Afterwards the eye speaks a silent language to the hand, and is understood.

The first case of operation for the restoration of sight on record, is that of Cheselden's in 1728. The youth, about twelve years of age, upon whom Cheselden successfully operated, believed, when first he saw, that the objects touched his eyes as the things which he felt touched his skin. Consequently, he had no idea of distance. He did not know the form of any object, nor could he distinguish one object from another, however different their figure or size might be. When objects were shown to him which he had known formerly by the touch, he looked at them with attention, and observed them carefully, in order to know them again; but as he had too many objects to retain at once, he forgot the greater part of them; and

when he first learned, as he said, to see and know objects, he forgot a thousand for one that he recollected. It was two months before he discovered that pictures represented solid bodies; until that time he had considered them as planes and surfaces differently coloured, and diversified by a variety of shades; but when he began to conceive that these pictures represented solid bodies, in touching the canvass of a picture with his hand, he expected to find something in reality solid upon it: and he was much astonished when, on touching those parts which seemed round and unequal, he found them flat and smooth like the rest. He asked which was the sense that deceived him, the sight or the touch? There was shown to him a little portrait of his father, which was in the case of his mother's watch; he said that he knew very well that it was the resemblance of his father; but he asked, with great astonishment, how it was possible for so large a visage to be put in so small a space? as that appeared to him as impossible as that a bushel could be contained in a pint.

An amusing anecdote recorded of him shows this complete want of natural or intuitive connection which there is in man, between the ideas

formed through visual and tactile sensations. He was well acquainted with a dog and a cat by feeling; but could not remember their respective characters when he saw them.

One day, when thus puzzled, he took up the cat in his arms and felt her attentively, so as to associate the two sets of ideas; and then setting her down said, "So, puss, I shall know you another time."

In the Philosophical Transactions for 1841, Mr. Frantz details the case of a young gentleman, aged 18, in whom the operation was followed by the happiest results. "When the patient first acquired the faculty of sight, all objects appeared to him so near, that he was sometimes afraid of coming in contact with them, though they were in reality at a great distance from him. He saw everything much larger than he had supposed by his sense of touch. If he wished to form an estimate of the distance of objects from his own person, or of two objects from each other, without moving from his place, he examined the objects from different points of view, by turning his head to the right and to the left. Of perspective in pictures he had, of course, no idea; he could distinguish the individual objects in a painting,

but could not understand the meaning of the whole picture: it appeared to him unnatural, for instance, that the figure of a man represented in the front of the picture should be larger than a house or a mountain in the back-ground. All objects appeared to him perfectly flat; thus, although he very well knew by his touch that the nose was prominent and the eyes sunk deeper in the head, he saw the human face only as a plane. Though he possessed an excellent memory, this faculty was at first quite deficient as regarded visible objects; he was not able, for example, to recognise visitors, unless he heard them speak, till he had seen them very frequently. Even when he had seen an object repeatedly, he could form no idea of its visible qualities in his imagination, without having the real object before him. Heretofore, when he dreamed of any persons—of his parents, for instance—he felt them, and heard their voices, but never saw them; but now, after having seen them frequently, he saw them also in his dreams. The human face pleased him more than any other object presented to his view; the eyes he thought most beautiful, especially when in motion; the nose disagreeable, on account of its form and great prominence;

the movement of the lower jaw in eating he considered very ugly. Although the newly acquired sense afforded him many pleasures, the greater number of strange and extraordinary sights was often disagreeable and wearisome to him. He said that he saw too much novelty which he could not comprehend, and even though he could see both near and remote objects very well, he would nevertheless continually have recourse to the use of the sense of touch. So complete was the success of this operation Mr. Frantz informs me, that the subject of it is, and has been for many years, actively engaged in the practice of medicine. The latest case published is that by my friend, Mr. Critchett, who successfully operated upon a young woman, aged 22. He observes that it was remarkable to contrast the rapidity and accuracy of her sense of touch, which was highly educated, with the slow laborious process by means of which she arrived at the shape and nature of an object through the medium of her newly acquired and imperfectly educated vision. I found that glasses assisted her very much in obtaining a clear outline of objects; but they gave her an impression that everything was much larger than her previous experience, through the

medium of touch, had taught her that it really was. I found that she was never able to ascertain what an object was by sight alone, though she could correctly describe its shape and colour; but that after she had once instructed the one sense through the medium of the other, and compared the impression conveyed by touch with sight, she was ever after able to recognise the object without touching it. In this respect her memory was very perfect; I never knew her fail in a single instance, and I put this power very frequently to the test of experiment. It was curious to place before her some very familiar object that she had never compared in this way, such as a pair of scissors. She would describe their shape, and glistening metallic character, but would fail in ascertaining what they really were until she put a finger upon them; when, in an instant, she would name them, and laugh at her own stupidity, as she called it, at not having made them out before. I made her describe the shape of objects that I was sure she had never had an opportunity of examining before, either by touch or sight, and this she did so accurately, as perfectly to prove, if proof be wanting, that she saw the object in its erect and natural position, and not

inverted, as it appears upon the retina. This experiment I several times repeated, and always with the same result; never, of course, allowing her to touch the object until she had described its shape to me. She was very near-sighted, particularly for small objects, and seemed at first to be unable to form any idea of solidity—everything seemed flat to her. Her greatest difficulty was the human face: although she could see and describe and name each feature, she seemed unable to take the whole as a unity, and was unable to recognise a person except by voice or touch; and after two years of education she had not perfectly acquired this faculty. When she first returned to her native village, after obtaining her sight, her mother gave an interesting account of her eagerness to examine and to gaze upon each object that had so long been familiar to touch. The room in which she had dwelt, the garden whose paths, flowers, and shrubs, she knew so well by many associations, came to her mind in all their homely beauty and shades of colouring through her sight; and she seemed never weary of gazing on them, and learning to take in and to appreciate their various characteristics. She seemed delighted with the shops in the neighbour-

ing town, particularly with those that tempted their customers with bright and showy colours, and elaborate patterns; and it was long before she could be brought to settle down to the quiet details and occupations of every-day life.

Section II.—*The Senses given, and the influence upon them of the absence of the one denied.*

In no class of the blind are "the senses given" so largely developed and highly cultivated as in the born blind. Deprived from birth of one of the most important of them, and the body being in a state of growth, the sentient nerves of these organs become more fully developed, whilst their diligent exercise also contributes largely to their power and perfectness. These remarks, however, refer more immediately to hearing and touch, the chief substitutes for sight; taste and smell seldom being unusually developed, unless in cases where more than one sense is lost.

Hearing.— The ear we look upon forms only a part of the organ of hearing, the remainder of which is hidden immediately beneath it, in the bony walls of the skull. The whole may be described as follows:—There is externally a

wide-mouthed tube or ear-trumpet, for catching and concentrating the waves of sound. The sound, concentrated at the bottom of this tube, falls upon a membrane stretched like the top of an ordinary drum over a chamber within, and causes this membrane to vibrate. That its motion may be free, the air contained within this cavity has free communication with the external air, by an open passage leading from it to the back of the mouth. The vibrations of the membrane are conveyed across this cavity by a little chain of bones, reaching from its centre to another membrane covering the oval door or window of the labyrinth. This labyrinth or inner chamber is very complex in its structure, consisting of intricate winding passages and canals, filled with fluid, lined by a membrane, on which the nerve of hearing is most minutely distributed. Some of the filaments of the nerve, stretching across the cavity like the strings of a harp, and in union with the other portions of the nerve, receive the vibrations conveyed by the fluid from the door of the labyrinth, and transmit them to the brain.

This structure is a striking instance of the adaptation of means to an end. Sounds are produced by a solid, or a liquid, or a gas, such as

air being thrown into vibration. We have an example of the first when the lip of a bell or a harp-string is struck, and produces a musical note; of the second, in the dash of a waterfall or the breaking of the waves; of the third, in the firing of a cannon, or the blast of a trumpet. Sounds once produced, travel along solid bodies or through liquid, or through the air, the last being the great conveyer or conductor of sounds. The human ear, as we have just seen, possesses each of these requisites for conveying sound in its hard and bony walls, the hardest in the human body, and in the volume of air and water contained in its cavities. These agencies are all engaged in our ordinary mode of hearing. The sonorous undulations or waves of sound collected by the trumpet opening of the ear, and concentrated on the tympanum, pass along the chain of bones through the air-chamber to the membrane closing the labyrinth. The impulses received by its fluid contents everywhere fall upon the nerve of hearing spread over it, and the impressions thus received are conveyed by it to the brain, and in consequence we hear; and thus perpetually, throughout the day, the mind receives communication

from the world without, through its instrument, the ear, just as the mind sees through its instrument, the eye, the objects which are momentarily passing before it. It is not necessary, however, for sounds to be heard that they should pass through the tympanum and air-chamber by the little chain of bones. Its vibrations may be directly transmitted by the solid walls of the skull to those of the labyrinth, and through its fluid to the nerve of hearing lodged in it. In proof of this, place a tuning-fork while vibrating between the teeth, or a watch in contact with the forehead, and the tones of the one and the ticking of the other are immediately heard, conveyed in the manner described. The perfectly deaf may hear in this way, although unconscious of the power. "A deaf man once sat smoking a long clay pipe by the side of a spinnet on which his daughters played. As he smoked on he became drowsy, and gradually fell asleep with the pipe still between his teeth. His head sunk inch by inch until the bowl of the pipe touched the wires of the instrument, and then a few faint sounds, as of 'bells in the distant sky,' (so he described it,) stole upon the old man's astonished brain. In utter amaze he started up,

dashed the pipe to the ground, and heard no more. It was the first time for twenty years he had been conscious of a sound. His deafness had been caused by a sudden discharge of cannon." *

The ear is more susceptible of education than the eye, and can be educated more quickly. Life's first act is the utterance of a cry, and the ear almost as early learns to catch the soft and gentle tones which soothe and hush it. But though its education begins thus early, it is much neglected. All are conscious of the sensitiveness of the ear to melody and harmony, and, as has been truly observed: "We not only seek to gratify it when bent upon recreation, but even in the midst of the hardest labour we gratify it if we can. Two carpenters, planing the same piece of wood, will move their planes alternately; so that when the one is pushing his forward, the other is drawing his back, thereby securing a recurrence of sounds, which, from their inequality, would be harsh if heard simultaneously. In the same way two paviors, driving in stones, bring down their mallets alternately; and so do working engineers, when they are forging a bar; and

* "Land of Darkness and Silence," by Rev. B. G. Johns, p. 19.

the smith, when he has dealt a succession of monotonous blows, relieves his ear by letting his hammer ring musically on the anvil; and I need not tell you how sailors, heaving the anchor or hoisting the sails, sing together in chorus."* The natural inclination of man towards music shows itself from the first, and yet how little are the sensitive ears educated, with which every one has been gifted by God!

It is true, they quickly, though almost untutored, learn what is necessary for the ordinary requirements of life; but as for that exquisite sense of melody or harmony of which they are susceptible, how few attain it! This is in a measure accounted for by the fact, that the necessities of civilized life are wanting in those pressing motives to the high cultivation of this sense, which we find to be so great a stimulant to effort in the savage state. The Red Indian listens to every sound of the woods, as a man will listen whose life and death depend on the quickness of his ear; there is no whine of the panther, no whistle of the cat-bird, nor any inventions of the Mingos, that can cheat him.

* Dr. Wilson's "Five Gateways of Knowledge."

How large a portion of the beauty and harmony of this lovely creation is unheard and hidden, from a neglect of rightly improving sight and hearing! In some respects the ear is a more perfect instrument than the eye. It has a much more limited range in space and time, but possesses a remarkable power which the eye does not.

The eye can regard but one object at a time, and shifts its glance from point to point, where many objects are before it, which it wishes to compare together. And when prosecuting this comparison between, for example, two bodies, it has in reality but one imprinted on it, and compares the perceived image of this one, with the remembered image of the other. But the ear can recognise in the same moment many sounds, distinguish their difference, and compare them. I hear at this instant the footsteps of the horse trotting by me, the whistling of the wind around me, and the roar of the ocean in the distance, all falling as distinct sounds upon my ear; but in one and the same moment harmonious, and yet distinct. Added to this, is the fact, still more wonderful, that a single ear can receive into its inner chamber, not bigger than a cherry-stone, the sounds of every instrument of the largest or-

chestra, blending in complete harmony; and where highly educated will detect the slightest discord. Touch, too, yields the palm of superiority to the ear. The former, as will be presently seen, may have a delicacy imparted to it, amounting almost to the development of another sense; so quick do the nerves become in their apprehension of forms and distances; still the balance of faculties is maintained chiefly through the ear; and undoubtedly it is through this organ that the largest contributions to happiness are made from without. Wordsworth has described the capabilities of the ear, in lines as philosophically accurate, in their analysis, as their measure is poetically beautiful: —

"Thy functions are ethereal,
As if within thee dwelt a glancing mind,
Organ of vision! and a spirit aërial
Informs the cell of hearing, dark and blind;
Intricate labyrinth, more dread for thought
To enter than oracular cave;
Strict passage, through which sighs are brought,
And whispers for the heart, their slave,
And warbled air,
Whose piercing sweetness can unloose
The chains of frenzy, or entice a smile
Into the ambush of despair;
Hosannas pealing down the long drawn aisle,

And requiems answer'd by the pulse that beats
Devoutly in life's last retreats.
Blest be the song that brightens
The blind man's gloom, exalts the veteran's mirth,
Nor scorn'd the peasant's whistling breath,
His duteous toil of furrowing the green earth.
For the tired slave, song lifts the languid oar,
And bids it softly fall with chimes;
That beautifies the fairest shore,
And mitigates the harshest clime."

The influence of the absence of the denied sense on the education of the sense of hearing is early noticeable, and its progress a deeply interesting study, both to the head and to the heart. This education commences in the cradle. The loving tones of the mother's voice first learnt, are quickly followed by that of the welcome footstep. The circle of knowledge, rapidly enlarging, embraces every member of the household, and, going hand in hand with her sister sense, the touch, gathers knowledge of the hidden things of the world around, provided only a judicious training is carefully exercised, and the child's efforts are not interfered with by a timid and unwise anxiety, but let alone to do what it can and likes. Home will not become a dark prison-house. Each room, with every article of furniture within it, will be as familiar to this child's

mind's eye, as to the clear vision of its brother or sister; and within and without its dwelling-place, bounded by a circle daily growing wider and wider, the way will be taken without fear or hindrance. Foremost among his young companions in their pleasant pastime, he pursues his sport as active and daring as any guided and guarded by the exquisite keenness of the perceptions of hearing and touch. This spring-time of life, so bright, so happy, though in ever-during dark, is touchingly and most truthfully delineated by Bloomfield, when he asks —

"Where's the blind child, so admirably fair,
With guileless dimples, and with flaxen hair
That waves in every breeze! He's often seen
Beyond yon cottage wall, or on the green
With others, match'd in spirit and in size,
Health in their cheeks, and rapture in their eyes.
That full expanse of voice, to children dear,
Soul of their sports, is duly cherish'd here.
And hark! that laugh is his—that jovial cry—
He hears the ball and trundling hoop brush by,
And runs the giddy course with all his might,
A very child in every thing but sight;
With circumscribed, but not abated powers,
Play the great object of his infant hours!
In many a game he takes a noisy part,
And shows the native gladness of his heart."

As the moral and physical development of the

child advances, the influence of the absence of the denied sense becomes more and more apparent. Every sound is interpreted and has its influence; the reverberation of the footstep tells of the approaching object; its character, size, and distance will determine the dimensions of an apartment, and the presence of any one within it. Dr. Saunderson, by the reverberation of his tread, could judge with wonderful accuracy as to the character of objects from five to twenty yards distant. Thus he was enabled to distinguish a tree from a post at the distance of five yards, of a fence from a house at fifteen or twenty yards. The sound of his footfall in a room enabled him to form a fair notion of the dimensions and character of the apartment. Having once crossed a threshold, so distinct was his individualization of every locality that he would always know it again, even after the lapse of many years. Dr. Abercrombie, in his "Intellectual Powers," mentions the case of a blind gentleman who was much esteemed as a judge of a horse. On one occasion, in giving his opinion he declared the animal to be blind, though this had escaped the observation of several persons who had the use of their eyes, and who were with

some difficulty convinced of it. Being asked to give an account of the principle on which he had decided, he said it was by the sound of the horse's step in walking, which implied a peculiar and unusual manner of putting down his feet.* There is now living in the county of York, says the Rev. B. G. Johns, in his "Land of Silence and Darkness," a gentleman of fortune who, though totally blind, is an expert archer, "so expert, says our informant (who knows him well), that out of twenty shots with the long bow he was far my superior. His sense of hearing was so keen, that when a boy behind the target rang a bell, the blind archer knew precisely how to aim the shaft." Prescott, the historian, remarks, "We well remember a blind man in the neighbouring town of Salem, who officiated some twenty years since as the town crier, when that functionary performed many of the advertising duties now usurped by the newspaper, making his diurnal round, and stopping with great precision at every corner, trivium, or quotrivium to chime his melodious twang; yet this feat, the familiarity of which prevented it from occasioning any surprise, could

* This anecdote needs verifying.—Ed.

have resulted only from the nicest observation of the undulations of the ground, or by an attention to the currents of air, or the different sound of the voice, or other noises in these openings, signs altogether lost upon the man of eyes." Dr. Rush relates of two blind young men, brothers, of the city of Philadelphia, that they could tell the names of a number of tame pigeons, with which they amused themselves in a little garden, by only hearing them fly over their heads. The human voice, the counterpart of the human ear, becomes not only the vehicle of spoken words, but in its delicate and varied intonations speaks a language unknown to the seeing. Not only is the friend recognised by the voice in daily life, but even after years of intervening absence. Upon the delicate and varied modifications of its tones, the blind man founds his first judgment of the physical and moral qualities of every person he comes in contact with. He thus appreciates age, stature, size, and form, deformities of the body, the presence of deafness, with a variety of other physical qualities, with a justness which those only can appreciate who have made the human voice their study. Moreover, these varieties of tone are studied by him, as the seeing

study the countenance, to discover there the qualities of the mind and heart. Dr. Moyes, when in company, would continue for some time silent, until the sound of the different voices enabled him to judge of the dimensions of the room, and of the number of persons that were present, and his discrimination in these respects was very remarkable. He would instantly recognise a person on hearing him speak, though several years might have elapsed since the time of their last meeting. Being one day accosted in the street by a young friend, whom he had not met with for several years, his instant remark on hearing his voice was, "How much taller you have grown since we last met!" He determined pretty nearly the stature of those he was speaking with by the direction of their voice, and judged of character by intonation, as the seeing do from expression.

Dr. Alcock states of James Stanley, the great musician, that he never forgot the voice of any person whom he had once heard speak. On one occasion, unexpectedly meeting with a friend who had been absent in Jamaica twenty years, upon hearing his voice, though he spoke in a feigned tone, he immediately called his friend by name,

and exclaimed, "Bless me, how long have you been in England?" So delicate and correct was his ear, that he was able to accompany any lesson with thorough bass, though he had never heard it before, thus anticipating the harmony before the chords were sounded, and accompanying it in a manner suitable to its nature. Dufau, in his valuable work, "*Des Aveugles*," to which I shall have frequent occasion to refer, strongly testifies to the truth of these observations on the human voice. Monsieur Tenio also does this in the most positive terms from his own experience: "La voix," he says, "est pour moi le meilleur miroir de l'âme, et je me trompe rarement sur le caractère d'une personne que j'ai entendre parler pendant quelques jours, parfois même pendant quelques heures." My own daily experience only tends to confirm these statements, and although blind at adult age, the education of the ear progresses daily, and is opening up a source of information mercifully compensating for sight. Yesterday I met a friend, after a six years' absence, and another to-day, after an interval of three years; both came upon me most unexpectedly, but both were instantly recognised by their voice. A few weeks since a lady swallowed a small piece of

chicken-bone, which, sticking in the gullet, caused much pain and some alarm. A portion of bread was masticated, swallowed, and carried with it the foreign body, as was strikingly evidenced to me by the altered tones of the voice. Shortly the sufferer, from a return of pain and uneasiness, feared the bone was still there. My convictions remained unaltered, accounting for the latter fact on the well-known principle, that in all such cases the painful sensation continues long after the foreign body has been dislodged. Time proved the correctness of this opinion. After the visit of a friend, who called upon me a few days since, whom I had not met for three or four years, I remarked, "Has he not become very thin?" "How could you possibly discover the fact?" was the reply;—an evident alteration in the tones of his voice seemed instinctively to indicate it. I can explain this in no other way. Perhaps my ear is more ready in learning this correspondence—which evidently exists for the blind—between the intonations of the human voice and the physical and moral qualities of its possessor, from the nature of my previous engagements. The ear of the practised physician in the consulting room and at the bedside of the sick, becomes in a measure attuned

to a similar language, which frequently gives him most important aid in forming an accurate judgment in a serious case.

The degree of perfectness which this sense attains varies in different individuals. Some are endowed with a much greater range of this sensory faculty than others; but its development will chiefly depend upon its being brought into early exercise, and subsequent diligent cultivation. In all, it will far exceed that of the sighted, and a few will reach a perfectness truly marvellous.

Touch. — Popular impression localises the organ of touch to the hand and fingers. It is not so limited however, but includes the skin of the whole body, to every part of whose surface the nerves of feeling are liberally supplied. This sense of touch and sensibility of the skin is as distinct as that which belongs to the other organs of sense; for though the nerves of this sense are thus widely spread, they are as appropriate and distinct as if they were gathered into one bunch, such as we find them to be in the organs of vision and hearing. Indeed, they become thus concentrated before they enter the brain, and there exercise their peculiar functions

of raising corresponding perceptions in the mind. The mind sees through its instrument, the eye; hears through that of the ear; and, in like manner, feels through that of the touch. It would be foreign to my subject, however, to enter into the consideration of touch, as exercised by the whole surface of the body. I shall, therefore, confine myself to the hand, to the face, and to the lips.

The tips of the fingers possess, like the rest of the body, an outer and inner skin: the outer, called the cuticle, — the inner, the true skin. The cuticle guards and protects the true skin from injury, while it is the medium through which the external impression is conveyed to the nerves of touch; and, in addition, these parts are distinguished by minute spiral ridges, to which allusion will presently be made. Beneath the skin is a soft, elastic cushion, which, supported by the broad shield-like nail, adapts it admirably for touch. The sentient nerves, more richly supplied here than to the surface of the body, pass in all directions through the elastic cushion to the true skin, possessing, in addition, certain minute auxiliary bodies, called tactile corpuscles; and it is under the spiral ridges,

already referred to, that these are the most abundant, and it is here consequently that the sense of touch is most exquisite.

This structure, however, would avail little unless we possessed the means of using it. This is found in the arrangement of the thumb and fingers, and in the motions of the wrist, elbow, and arm which give the hand a power of accommodating itself to surfaces, which no other part of the body possesses; and, together with their muscular structure, affords all that is requisite for the perfect exercise of this sense. For, in the use of the hand we not only feel the contact of the object, but we make a muscular effort to reach it, or to grasp it in the fingers; and it is only in the exercise of this latter power that there is really an effort made. There is no more direction of the will towards the nerve of touch than towards any other sensible nerve.*

Touch may then be defined as that peculiar sensibility which gives the consciousness of the resistance of external matter, makes us acquainted with the hardness, smoothness, size, and form of bodies. It enables us to distinguish

* Still the will is a strong motive power.— Ed.

what is external from what belongs to us; and we estimate also by it distance, motion, number, and time.

This organ of touch, embodied as it is in the hand, is, in some respects, the most wonderful and important of the senses. All the others, however perfect, are beholden to the hand for the enhancement and the exaltation of their powers; but it is especially in the absence of one of the other senses that the value of that of touch is so fully realised; and in none is it so manifest as in the born blind. It becomes in a remarkable manner the substitute of sight, learns its duties, and fulfils them with a perfection truly marvellous.

The different degrees in which this power is possessed, and what is accomplished by it, is best seen in the institutions for the Blind in this and other countries; a visit to any one of which would be found most interesting and instructive. Various mechanical arts are taught to the pupils. The following are amongst the number in which the males are employed: printing, an art for which the blind show particular talent, is gone through in all its processes of composing, working the press, and distributing the types, with

the same accuracy as that of those who can see. They print or rather emboss all their books; and if taught in early youth, read by means of the finger with the greatest facility. Basket-work, of every possible size and description, is manufactured, from the finest dinner mat, to the roughest market basket. Flower-stands, chairs, and screens; in short, all kinds of wickerwork. Shoes are made in leather, plush and list, from the cutting out of the material to the completion of the article. Mats of all descriptions, size, and colour, from the largest and thickest to the most delicate and dainty; but, more difficult still, rugs for drawing-rooms, of patterns the most complicated and beautiful; "and every twisted "branch, variegated leaf, and brilliant flower are "depicted with as much accuracy, as though the "worker had the benefit of eyesight." The mode by which the blind weaver is able to accomplish this really wonderful piece of workmanship, and few ever attain this great skill and dexterity, the reader can alone understand by personal inspection.* The female pupils are engaged in the

* Vide "Land of Darkness and Silence," p. 184, for a full account.

finer kinds of basket-work, but chiefly in sewing, knitting, spinning, twine-making, in making window and picture-frame cord, hair weaving, and making purses delicately embroidered with figures of animals and flowers.

The art of turning, a step in advance in the development of touch, is followed with complete success in many foreign institutions; not only the blind, but the blind and deaf-mute displaying much skill in this art. The use of sharp-edged tools, and the great variety necessarily employed, as well as the mechanical difficulties of works of this character, much limits this employment.

In the Institution des Aveugles, in Paris, works of the most delicate and difficult descriptions are executed, and excite the admiration of all who see them. The favourite amusement of Edward Meystre, the blind and deaf-mute of Lausanne, is the turning lathe. He has arrived at great perfection in this art, and will quiz the new pupils (all blind) for any irregularity in their work. With neither sight nor hearing to direct his operations, reduced to the possession of three senses only, two of which can avail nothing in such a pursuit, he must be considered one of the most remarkable examples on record of the de-

velopment of touch. The triumph consists, not so much in what has been accomplished, as in the scanty means by which it has been achieved.

The manufacture of clocks and watches demands a still higher degree in the development of the tactile power — the highest, perhaps, of all mechanical arts. Although this art is not taught in our institutions, many interesting cases of some degree of skill being attained are on record.* One of the most remarkable is that of William Huntley, of Barnstaple, in Devon, who was born blind. His father being a watchmaker with a thriving trade, and the boy showing early a strong predilection for mechanical pursuits, he carefully instructed him in his own craft. He rapidly acquired a knowledge of his trade, succeeded his father in the business, and became extensively known for his superior skill and success. He seldom met with any difficulty, even in the most complicated cases; and it often occurred, that when others failed in repairing a clock or watch, Huntley presently discovered the cause of the defect, and applied to it the proper remedy. Such is the simple narrative. When, however,

* But watchmaking could never be taught in schools. Who would employ a blind watchmaker, or a deaf tuner?—Ed.

we remember how numerous are the parts constituting the machinery of a watch; how minute, delicate, and varied is their structure; with what admirable exactness each portion must be adjusted, so that the whole may work with unerring certainty; and, moreover, that the man with eyes finds it necessary to increase their power by artificial aid, in order to produce such a work; our wonder and admiration may well indeed be excited, to find it accomplished by one who has neither eyes nor magnifier, but by the organ of touch only. And if anything could add to our astonishment at incalculable obstacles so overcome, it would be the fact, that in cases of difficulty the blind man has proved himself the superior workman of the two.

Of individual instances, in which this power seems to have attained its highest perfection, many might be given. Saunderson could with great nicety and exactness perceive the smallest degree of roughness or defect of polish on a surface; thus in a set of Roman medals, he distinguished the genuine from the false, though they had been counterfeited with such exactness as to deceive a connoisseur, who had judged by the eye alone. Moyes, on one occasion, when lec-

turing on Optics, gave an extraordinary illustration of the power of touch. A highly-polished plate of steel was presented to him, with the stroke of an etching-tool so minutely engraved on it that it was invisible to the naked eye, and only discoverable by a powerful magnifying-glass. With his fingers, however, he examined the extent, and measured the length of the line. Dr. Carpenter, in his "Principles of Human Physiology," mentions the case of a blind friend of his own, who has acquired a very complete knowledge of conchology, both recent and fossil, and who is not only able to recognise every one of the numerous specimens in his own cabinet, but to mention the nearest alliances of a shell, previously unknown to him, when he has thoroughly examined it by his touch. Equally exquisite is the power which enables the blind to distinguish the colours of surfaces which are similar in other respects; and however wonderful this may seem, it is by no means incredible. This power is to be explained by the fact, that the difference of colour partly depends upon the position and arrangement of the particles composing the surface, which render it capable of reflecting one ray, whilst it absorbs all the rest; and it is

quite consistent with what we know from other sources, to believe that the sense of touch may become so refined as to communicate a perception of such differences; thus, the name of blue is associated with one sensation, of red with another, and so on. Monsieur Guillié, in his "Essai sur l'Instruction des Aveugles," mentions several apparently well-attested anecdotes of blind persons, who had the power of discriminating colours by the touch. One of the individuals, a Dutchman, noticed by him was so expert in this way that he was sure to come off conqueror at the card-table, by the knowledge which he thus obtained of his adversary's hand whenever it came to his turn to deal. In the "Philosophical Transactions" there is an anecdote of a blind tailor, named Maguire, the family tailor of Mr. Macdonald, of Clanronald, Invernesshire, who became quite blind fifteen years before his death, yet continued to work for the family as before, not, indeed, with the same expedition, but with equal correctness. It is well known how difficult it is to make a tartan dress, because every stripe and colour, of which there are often many, must fit to each other at the seams with mathematical exactness; hence it is, that

very few tailors, even in the enjoyment of sight, are equal to the task. Blind Maguire could, however, do it; and it is said that he was able to distinguish the colours by his touch. On one occasion, he received orders to make his master's brother, who had lately returned from India, a suit of tartan within a given time, and proceeded to work without delay. It so happened that this gentleman passed at a late hour at night through the room where the blind tailor was at work, and hearing some low singing he asked, "Who's there?" to which the poor fellow replied, "It is I, working at your honour's hose." "How can you work without a candle?" said he, forgetting that Maguire was blind. "Oh, please your honour," rejoined the tailor, "midnight darkness is the same as noon-day to me."

The only case that has come to my own knowledge, I now give in the words of my friend: "Visiting in 1847 some friends in Gloucestershire, one morning, a man about twenty-five, perfectly blind, for the eyes were entirely gone, called to return thanks for his admission into a blind Asylum, in which he had been residing for some years past. In giving an account of what he had learnt there, he mentioned the power of distinguishing colours by the touch, and begged

those present to try him. I made him feel my dress, a French merino, and he replied, 'I should say this is a reddish-brown,' which it was. The next given him was one of the Rob Roy tartan; he said, 'This is a material of two colours, red and black.' Another person made him feel her blue-gauze veil.* 'This is blue, but a very thin dress for the time of year,' was his reply. The only other trial to which he was put was a printed cotton, which he at once pronounced to be of various colours. Being asked how he attained this power, he replied, 'A piece of cloth was given me, and its colour named, which I felt till quite familiar with it; then another, which I continued to examine until I could correctly distinguish one from the other; and so on, until I knew all the colours,' and as it seemed to us, even shades of some. The darkest colours appeared to him to have most body in them. He said, 'it required a very sensitive touch, and great patience and perseverance, and that, consequently, very few attain the power.'" †

* If the testimony of all the inmates of the largest Blind School in Europe is to be believed, they have not the least power of detecting colour.—Ed.

† In a case of this kind, mentioned by Mr. Boyle, the individual stated that black imparted to his sense of touch the greatest degree of asperity, and blue the least.

The hand, however, must not take to itself all the honours of this sense. "*The surface of the face*, a portion of the same apparatus, very largely aids the hand and ear. Supplied by the same living chords or nerves as the hand, and constantly exposed to the impressions of the atmosphere, its surface in the born blind becomes exquisitely sensitive to that which is unnoticed and unknown to the sighted. The density and rarity of the atmosphere, its heat and cold, but above all, the varying degrees of the pressure of the waves of the air upon the face, determined by the size and proximity of the objects, intercepting its currents as it is approached by the blind man, are sources of very valuable information; and much of the intelligence which has been supposed to be derived through the ear has been obtained through this medium." We have in this an easy explanation of what might otherwise be thought incredible. "I have been with Dr. Saunderson in a garden, making observations on the sun," says the writer of the account of his life, prefixed to his Algebra, who had been one of his intimate friends, "when he has taken notice of the smallest fleece of cloud that disturbed our observations, almost as justly as we could. He could also tell

when anything was held near his face, as when he passed by a tree at no great distance, merely by the different impulses of the air."

I am quite conscious myself on a sunny day of the moment when a cloud passes over the sun's disc, and upon inquiry of my companion, have never yet found myself mistaken — a sensible change in the temperature of the air passing over the face making me alive to the fact. The first time it occurred it pleasantly brought to remembrance a sweet visual memory of the past — of that much-loved flower, the daisy. This daughter of the day, as Chaucer elegantly styles it, that opes its eye as the day dawns, and shuts it altogether when the sun goes down again, was once more seen at my feet. Shakespeare's allusion (for he was ever alive to analogies) to the influence of the sun's rising on flowers, in "Cymbeline," will not be forgotten,—

> "Winking Mary buds begin
> To ope their golden eyes;"

nor the Ettrick Shepherd's lines on their closing, in an evening song:

> "When the blewart bears a pearl,
> And the daisy turns a pea,
> And the bonnie lucken gowan
> Has fauldit up her e'e."

When riding in my chair on a calm and not windy day, I know myself to be in an open space by the sensation of being surrounded by a large volume of air, equally pressing on the whole surface of the face. If a row of houses is approached, this complete pressure is no longer felt on the corresponding side of the face; and should a single house occur at the same time on the opposite side, it will be immediately discovered by the pressure on that side of the face being lost for the moment. There are two windmills, a quarter of a mile apart, on a road along which I frequently ride. They stand alone, and if the weather is favourable I can always tell the moment when passing them, by the sensation already referred to. It is not now so difficult to understand the doings of my poor blind neighbour. If, recently blind, and at mature age, I am able to acquire a class of perceptions hitherto unnoticed because there was no call for them, how keen must be their realization by one who, born blind, must, from his earliest days, have cultivated them with the greatest care! Jonathan, by trade a basket-maker, having finished the baskets ordered, of all sizes, shapes, and patterns, will shoulder his burthen, and with stick in hand, walking in darkness,

will pass through common, field, and meadow, over the narrow plank, across the deep brook, up the winding lane and high road, over the bridge into the town, and onward to village and lone farm-house; delivering with correctness to every customer their orders, and return home to his cottage, having thus travelled his twenty miles, or more, in perfect safety, without help; his ear, his hand, and his face having been his only guides. Of course, the way has been learned, but his landmarks of house and tree, bridge and plank, hedge and ditch, are as familiar to his sensations as the sign-posts to the sighted. This case is not an uncommon one among the class to whom he belongs. Nay, so perfect may this and the sister sense of hearing become, that in the night the child of darkness has proved the careful guide of the seeing. Let one of them tell his own tale. James Wilson, in the well-known history of his life, says, "On a winter's evening, in 1797, as I stood in one of the principal streets of Belfast, I was accosted by a person, who, in the southern accent, inquired its name. After I had imparted the desired information, he told me that he was a soldier, and belonged to a detachment of the Limerick militia, which had marched into the

town that day. 'I went out,' said he, 'to look for the sergeant to get the pay, and being a stranger in the town, I lost myself; I left my wife and my firelock in the lodging-house, and I forgot the name both of the street and of the people that own the house. I have been wandering about these two or three hours, and nobody can tell me where they are.' I inquired if he had observed any particular building near the place where he left his wife. 'I believe,' replied he, 'after turning one or two corners I observed a church.' Considering for a moment in which of the streets in that quarter there was a lodging-house, and recollecting that a Mrs. Tawny kept a house of entertainment in William-street, I bade him follow me; and took good care to keep him before me, that he should not discover that I was blind. At that time there were no houses on the south-west side of William-street; and fronting the houses on the north-east, there was a deep ditch, full of filth. As the night was very dark, and there were no lamps in that direction, his eyes were of no service to him whatever; consequently he resigned himself entirely to my guidance. We had to cross the place already mentioned by six stepping-stones,

and though there was no danger whatever of being drowned, it was more than probable that had the soldier got a dip, his plight, on coming out, would have been far different from that in which he appeared at parade. I groped with my staff for the first stepping-stone, and getting on it, I took hold of his hand, and bade him put his foot where mine was, warning him at the same time of the consequence of not balancing well. In this manner I conducted him from one stone to another, till I landed him safely on the opposite side, and was highly diverted to hear him observe that my eyes were better than his. I brought him to Mrs. Tawny's, and left him standing at the door while I went in to make the necessary inquiry. I soon learned that I had guessed right, for I found his wife almost in despair at his absence; but I bade her be of good cheer, for I had brought her husband to her; and so saying I called him in. His wife was rejoiced to see him again, and saluted him by crying out, 'Bless me, dear Barney, where have you been? I thought you were lost.' 'I could not find my way back,' said he, 'if it had not been for this decent man that showed me the house.' 'And more shame for you,' said the landlady, 'for you have your

eyesight, and yet you must be guided to your lodging by a blind man!' Whereupon they blessed themselves and me, after a true Irish fashion."

The same writer gives an equally remarkable fact in the life of John Metcalf. Metcalf had learned to walk and ride readily through all the streets of York; and being once in that city, as he was passing the George Inn, the landlord called him, and informed him that a gentleman in the house wanted a guide to Harrowgate, adding: "I know you can do as well as any one." To this proposal Metcalf agreed, upon condition that his blindness should be kept secret from the gentleman, who might otherwise be afraid to trust him. The stranger was soon ready, and they set off on horseback, Metcalf taking the lead. When they came to Allerton, the gentleman inquired, whose large house that was on the the right, to which Metcalf replied without hesitation. A little further, the road is crossed by the one from Witherby to Boroughbridge, and runs along by the lofty brick wall of Allerton Park. A road led out of the park, opposite to a gate upon the Knaresborough road, which Metcalf was afraid

of missing, but perceiving the current of wind that came through the park gate, he readily turned his horse towards the opposite one. Here he found some difficulty in opening the gate, in consequence, as he imagined, of some alteration that had been made in its way of hanging, he having not been that way for several months; therefore, backing his horse, he exclaimed: "Thou always goest to the heel of the gate instead of the head." The gentleman then observed, his horse was awkward, but that his own mare was good at coming up to a gate; on which Metcalf cheerfully permitted him to perform that office. Passing through Knaresborough, they entered the forest, which was then uninclosed, nor was there yet any turnpike road upon it. Having proceeded a little way, the gentleman observed a light, and asked what it was? Metcalf took it for granted that his companion had seen what is called "Will-o'-the-wisp," which frequently appears there, in a low and swampy spot near the road; but, fearful of betraying himself, he did not ask in what direction the light lay. To divert his attention from this object, he asked him if he didn't see two lights, one to the right and one to the

left? The stranger replied, that he saw but one, to the right. "Well, then, Sir," says Metcalf, "that is Harrowgate." Having arrived at their journey's end, they stopped at the house now called the "Granby," where Metcalf, being well acquainted with the place, led both the horses into the stable; he then went into the house, where he found his fellow-traveller comfortably seated over a tankard of negus, in which he pledged his guide. Metcalf took it very readily from him the first time, but the second he was rather wide of his mark. He soon after withdrew, leaving the landlord to explain what his companion was yet ignorant of. The latter hinted to the landlord his suspicion that his guide must have taken a great quantity of spirits since their arrival; upon which the landlord inquired his reason for entertaining such an opinion. "I judged so," replied the traveller, "from the appearance of his eyes." "Eyes! bless you, Sir, do you not know that he is blind?" "What do you mean by that?" "I mean, Sir, that he cannot see." "Blind!" he exclaimed, with astonishment. "Yes, Sir, as blind as a stone." The stranger desired Metcalf to be called, and upon his confirming the land-

lord's account: "Had I known that," said he, "I would not have ventured with you for a hundred pounds." "And I, Sir," said Metcalf, "would not have lost my way for a thousand pounds."

The investigations of modern science have shown that the mode by which the impressions of light are received is similar to that of touch and hearing; the undulatory elastic fluid concerned in producing the phenomenon of light, itself a fluid pervading all space, falling upon a suitable nervous tissue in the eye, produces the sensation of light. Now of the latter sensation the person born blind is deprived; he knows nothing of the beauty of light. His physical system, however, is, equally with all others, ever under its beneficial influence, for as the plant growing in the dark becomes bleached, and the corn growing under the shade of a tree is paler and later in ripening than that growing in an open part of the field, so the child deprived of the wholesome and gentle stimulus of light grows up pale, sickly, and deformed. But even more than this, is it not possible that the exquisitely sensitive surface of the body, rendered doubly so by the absence of sight, may not only be cognisant

of the pulsations of the air, but of modifications of that fluid caused by light itself? Such conjectures become more than probable from the facts we meet with among the born blind, strengthened as they are by the opinion of those who have been their close observers. A pupil resident in the institution at Zurich, who was born blind, when interrogated on this subject, replied that, without being able to tell why, during the day he never had the idea that it was night; and when further pressed to say if he discerned any difference between day and night; "Yes, without doubt," he replied, "a great difference. In the night when I awake I know all is black and sombre around me, though black and sombre are not the same thing. The day, on the contrary, appears to me lighter, and existence itself is lighter. It is the effect of the air, which is another thing in the day time from what it is at night." He added: "We observe each change and each pressure of the air, and I always know in walking when I am under a tree, without touching it, and not only when the sun shines, but also when it is for a time obscured." * Monsieur

* "L'Institut des Aveugles et des Sourds-muets de Zurich, par M. de St. Celli." Zurich, 1835.

Tenio affirms, in his "Travels in different Parts of Germany," that, notwithstanding he was perfectly blind, he had certain perceptions indicating the presence of light!*

Dufau speaks of his firm belief in the existence of this power, and states that many blind persons have assured him that they can discover whether they are in the darkness or light; and he adds, "I have, myself, seen many look fixedly at the sun, and though blind, perceive when a cloud passed over its disk. I one day inquired of an intelligent young man why he appeared annoyed when he was suddenly brought into a strong light. 'It seems to me,' he replied, passing his hand rapidly before his eyes, 'that the air inflicts a blow upon me.' I have already referred to the susceptibility of the surface of the face to the pulsations of the air. From my own experience, I can have little doubt that these sensations are considerably modified by the presence of that fluid in the air, which, in the sighted, produces the phenomenon of light; and I believe that, if by any chance I should lose my reckoning of day and night, if led into the open air, I should recover it by the marked difference which I should ex-

* Stutgard, 1837.

perience in my general sensations from the presence of light or darkness."

The *lips* are almost as liberally supplied with nerves of touch as the tips of the fingers, and in one instance have done good service to a fellow-sufferer. A poor blind girl, residing in one of the provinces of France, had for many years, as her greatest comfort, perused her embossed Bible with the finger: getting out of health, and becoming partially paralysed, the hand also was affected, and gradually all power of touch was lost. Her agony of mind at her deprivation was great, and in a moment of despair she took up her Bible, bent down her head, and kissed the open leaf, by way, as she supposed, of a last farewell. In the act of so doing, to her great surprise and sudden joy, she felt the letters distinctly with her lips, and from that day this poor child has thus been reading the word of God, "words more precious to her than silver or gold—even fine gold."

Smell.—The structure of this organ is very simple, and may be described in a few words. If either nostril could be looked into, a large arched cavity would be seen, divided into spaces by many curled partitions, the whole formed of

bone and lined with a soft and delicate membrane. The surface of this membrane is largely supplied with nerves, which, like so many little twigs, unite together into one branch. Of these, there are many, which, all uniting into larger trunks, finally pass from both nostrils through holes in the arched roof, and terminate in the brain. These are called olfactory, or nerves of smell. If the mouth be closed, and a flower held to the nostril, and air inspired, the odours of the flower with which it is charged, coming in contact with the sensory extremities of the nerves of this membrane, the impression produced will be conveyed by them to the brain, and thus we smell. How the mind becomes conscious of odour we cannot tell, but we know that if through disease the nerves are destroyed, the sense of smell is lost. The lower internal part of the nostril is supplied with another nerve, a branch of what anatomists call the fifth pair. This is entirely distinct from the olfactory nerve, and similar in kind to those of touch and feeling. If hartshorn be inspired in very small quantities, its odours will be perceived alone by the proper nerve of smell. If the quantity be slightly increased, its pungency will in addition be felt by

this branch of the fifth pair; and if the quantity be greatly increased its irritating pungency will overpower its odour, and it will act alone upon the fifth pair. In the very few remarks which follow, it will be unnecessary to draw any distinction between pungency and odour, and the term smell, as it is popularly understood, will only be employed.

The importance of this sense among many of the lower animals, in guiding them to their food, in giving them warning of danger, and in many cases assisting them in tracing out their companions, where the eye and the ear would be of no avail, is well known. In man, subordinate as it is to the senses hitherto noticed, it is yet susceptible of a far higher degree of cultivation than is generally supposed. Not only may the nostril of the foxhound, the pointer, or terrier be trained to a more quick and precise sense, but also that of man; through long practice the chemist will detect the presence of poison by the acuteness of his smell, and multitudinous are the odours to which this practised sense becomes familiar. In various trades a similar power is acquired, of the utmost value in the selection of a superior article, and in the detection of adulter-

ations. Among savage tribes, this sense, like those already noticed, and from the same causes, is much more highly trained than among civilized nations. It is asserted by Humboldt that the Peruvian Indians in the middle of the night can thus distinguish the different races—whether European, American, Indian, or Negro. The pleasurable emotions derived from this sense are as largely shared in by the blind as the sighted, and perhaps more highly prized. The sweet breath of flowers in the open air, where it comes and goes like the warbling of music, the far-wafted scent of the bean and lavender fields, and every variety of fragrance in its season, are sources of exquisite enjoyment to the blind man, while they are often conveyers of useful information. How often will the air, scented by the sweet-briar or the honeysuckle, solve the doubtful point of his locality, and safely guide him to the cottage of his friend!

The influence of the absence of the denied sense upon that of smell, though very marked, has had a limited range among the blind. Satisfied with the help of the sister senses, touch and hearing, this has been little exercised, and it would appear to require the loss of one of the

other senses to bring out its full power. It is recorded of a blind gentleman, who had an antipathy to cats, that he was possessed of a sensibility so acute in this respect, that he perceived the proximity of one that had been shut up in a closet adjoining his room. Mons. Bodenbach, says, "I knew a blind person whose sense of smell was so perfect, that in rubbing a piece of blue cloth between his hands, he smelt the indigo, and thus detected its colour was blue." There is only one well-attested case in which this sense was very highly trained.* It is that of James Mitchell, who was born blind, deaf, and dumb. It was his principal means of distinguishing persons, and it enabled him at once to perceive the advent of strangers. His sense of touch was totally neglected; but the case will be fully given at a future page.

Taste.—The organ of taste is not confined to the tongue alone, but its perceptions are partially shared by the palate, nostril, and back of the throat. The whole of these parts are richly endowed with fine delicate nerves, which

* Saunderson himself is said to have had a very keen touch. He could detect bad coin, but was utterly unable to detect colour.—Ed.

terminate in the brain, and through them those sensations are experienced, which we recognise by the terms—savour, sapidity, sour, sweet, bitter, and the like. Moreover, the tip of the tongue is supplied by a branch from the fifth pair of nerves, and is as exquisitely sensitive to the impression of external objects, as the tips of the fingers themselves. There is, indeed, a great analogy between this organ and that of touch, of which it would appear to be a modification. The intimate structure of both organs is nearly the same, and in both the actual contact of the external object with the organ through which the impression is received is necessary, and this is the case with no other sense.

The sense of taste has for its object our guidance in the choice of food, and excites the flow of the mucus and saliva, which are destined to aid in the preparation of the food for digestion. Amongst the lower animals, the instinctive perceptions connected with this sense are much more remarkable than our own; thus an omnivorous monkey will seldom touch fruits of a poisonous character, although their taste may be agreeable; and animals whose diet is restricted to some one kind of food, will decidedly reject

all others. As a general rule, it may be stated that substances of which the taste is agreeable to us, are useful in our nutrition, and *vice versâ;* but there are many signal exceptions to this. It is susceptible, like the other senses, of education. The experienced wine-taster can distinguish differences in age, purity, and place of growth; and so will a professed *artiste* of the *cuisine* determine the composition of the most elaborate dish, and detect each variety of spice contained in the most piquante sauce.

This sense ordinarily administers only to the gratification of our animal being; and doubtless the pleasures of taste, when used within their proper limits, contribute greatly to the enjoyment of existence. The blind man, however, has made it productive of much intellectual pleasure; and so exquisitely has he cultivated the tactile power of the tip of the tongue, as largely to aid him in the pursuit of floriculture. That organic bodies so minute and delicate in their structure as flowers, whose chief attraction is their beauty and colour, should form the study of the sightless, may well excite surprise.

Not a few, however, have excelled and taken delight in the study of botany, of whom the

highly gifted John Gough was a striking example. Ordinary plants he could easily and readily distinguish by the touch of his fingers, and if any difficulty was met with, it was immediately solved by the application of the tip of the tongue to the several parts of the plant. As a proof of his discriminating power, and the strength of memory which alone could have enabled him to take interest in this pursuit, it is mentioned that towards the end of his life a rare plant was put into his hands, which he very soon called by its name, observing that he had never met with more than one specimen of it, and that was fifty years ago.

Mons. Guillié observes that the most certain mode of distinguishing colours by the blind, is that of touching them with the tip of the tongue, and that by this means they can detect those analogous colours as black and dark blue, red and pink, which having the greatest affinity, not unfrequently deceive the eye.

Such are the senses given, and the high development which they may attain in the absence of the sense denied. As must have been perceived, their relative value is unequal. Smell and taste gather but scantily, while hearing and touch

pour knowledge largely into the mind from the world without. When blessed with the power of witnessing what could be accomplished by the sightless, I was disposed to think touch stood first in rank; but my experience in the land of darkness leads me to place hearing pre-eminently first.

Whatever the object searched for, touch must trace it out in detail; and although its domain be very extensive, this is a great drawback to its value. It is far otherwise with hearing; as with a glance, it catches everything around, or if not, it can be instantly revealed through the same avenue, by the human voice. This collective value, enriched by high cultivation, although not an equivalent for the loss sustained, compensates largely for it; and what has been successfully accomplished by those who have thus highly cultivated them, will shortly be seen.

SECT. III.—*The influence of the Absence of the denied Sense on the Intellectual Character.*

It has already been shown how man gains his knowledge of the world without; how every idea of external objects is conveyed by the senses to

the mind within—to that presence-chamber, the brain, where all our stores are treasured up, and employed by the understanding; that some ideas are conveyed into the mind by one sense only, as light and colour by the eye, sounds and tones by the ear, taste and smell by the nose and palate; while some ideas are acquired by more than one sense, as space, figure, motion, and rest; these making perceivable impressions both on the eye and touch, and by either inlet passing into the mind.

I have already endeavoured to show how merciful is the latter arrangement for the blind man, and how largely, in the absence of sight, the most comprehensive of all the senses in gathering knowledge, hearing and touch supply its place. How strikingly this is proved and illustrated in the lives of the blind mathematicians and philosophers of a past and present age, will presently be seen. These men, the highest type of their class, though they had never beheld the light, understood, and taught to the seeing, the profoundest branches of knowledge. One class of ideas, however, they never could approach; light and colour being peculiar only to the sense of sight, the born blind can have no idea of them, and no words will

ever convey to them a true idea of either. "A studious blind man, who had mightily beat his head about visible objects, and made use of the explanation of book and friends to understand those names of light and colours which often came in his way, bragged one day that he now understood what scarlet signified; upon which his friend demanding what scarlet was, the blind man answered, It was like the sound of a trumpet."*

An example of the association of ideas in regard to colour, certainly far more accurate, is given by Mons. Guillié of one of his own pupils, who in reciting the well-known passage in Horace, "*rubente dextera jaculatus arces*," translated the first two words by "fiery" or burning "right hand." On being requested to render it literally, he called it "red right hand," and gave as the reason for his former version, that he could form no positive conception of a red colour; but that, as fire was said to be red, he connected the idea of heat with this colour, and had therefore interpreted the wrath of Jupiter demolishing town and tower by the epithet "fiery" or "burning;" for, when people are

* Locke.

angry, he added, "they are hot, and when they are hot they must of course be red."

The blind philosopher * may understand as well as any other man the distances and motion of the heavenly bodies, may calculate with the greatest accuracy their movements, may comprehend the laws which regulate the reflection and refraction of light; but of the appearance which the magnificent map of the heavens, with—

> "Every star which the clear concave
> Of a winter's night
> Pours on the eye,"

or of the beauty of light itself, he can have no notion, and no words can convey it. Thus denied, coloured nature, as Condillac finely styles it, entirely veiled from him, from the cheerful ways of men almost cut off, and shut within the precinct of his own microcosm, it becomes a most interesting question, what influence does this condition of isolation and darkness exercise over his intellectual and moral being?†

"Many persons ‡ are impressed with the idea

* Not the born blind, who has no idea of what space really is.—Ed.

† This Section will be confined to the first of these points.

‡ Quoted in substance from article on Blindness in Edinburgh Review, January 1854, by the Editor.

that the born blind, as a class, are inferior in intellectual power and attainment to the seeing; as if, with the denial of vision, the intellect necessarily received a partial blight, and its powers of acquisition were consequently diminished." Very unfrequent, however, are the cases in which (from the cause of blindness extending to the brain) such a result occurs; and with the exception of these rare cases, the popular notion referred to is founded in error — an error which has done much to limit educational efforts on their behalf. The circle which environs them is indeed a narrow one, but within it the vision of the blind student has full sway, and nothing is too distant for his intellect to gather, even from far-off sources, and bring within his own range. To those not conversant with the history of the blind, loss of sight naturally suggests an insurmountable obstacle in the acquisition of knowledge. How men have struggled against this misfortune, have mastered their calamity, and obtained distinguished eminence in intellectual pursuits, facts telling their own story will fully reveal to us. The literature of this subject is far more copious than one, who had not made it a branch of special inquiry, would imagine. It will be un-

necessary to refer to the records of antiquity, so full and rich in celebrated and interesting instances; and now, in pointing out the influence of blindness on certain of the intellectual faculties, I shall select my illustrations from a later period, making mention only of a few, who are entitled to our regard and admiration for the noble and inspiring lessons they have taught. Their history will amply suffice to prove at once the erroneousness of the idea already alluded to, and the full measure of the mental capabilities of the born blind.

Blindness exercises an unceasing influence over the faculty of *attention*. To secure this effort of the mind on the part of the child with eyes, and further, to induce him to reflect upon the object perceived, until memory has placed it safely in her storehouse for future use, is a task always attended with difficulty, and sometimes with chiding and tears. Not so with the child without eyes. This power of the mind, the root of so many others, would seem to be a natural endowment, developing itself with the earliest sign of intelligence. Nothing is easier than to excite it in very young children; and, provided the subject referred to is not beyond the strength of their

understanding, you will see them impressed with the deepest desire to comprehend and to retain. This is easy of explanation. The attention of the seeing child is distracted by the variety of objects which simultaneously meet its view, and withdraw it from the one upon which it ought to be centred; while, with the blind child, the sensations of hearing and touch are isolated in their nature, and attention arrives at the perception of its object without distraction. Formerly, when I rose in the morning, I shaved by sight—the eye guided the instrument: but I more frequently cut myself than I do at present. A fly lighting on the looking-glass, the coming of the servant into the room, was a sufficient cause of distraction. The effort of attention was broken, and the blood flowed. Now, in darkness, touch guides the razor, the attention has nothing to distract it, and my chin is never wounded. But, to take an illustration, in which the primary qualities of the object are complicated, as a shrub in flower; sight takes in the whole at a *coup d'œil.* The process of mind is rapid, often careless, and the impression indistinct, and not lasting. How different is it with touch! Every part of the plant must be felt out

in detail: the roots, the stem, branches, leaves, buds, and flowers. Attention is in full exercise, the perceptions of the tactile sensations are carefully reflected upon, and the image of the whole is firmly fixed in the memory. This effort of the mind, thus early brought into action, and almost momentarily exercised, becomes in time a habit, largely influencing the intellectual character; and hence, patience, perseverance, habits of industry, and, above all, a craving appetite for knowledge, are each and all its fruits, and are sufficiently common to be considered as characteristics of the blind.

This truth has been forcibly felt by me since the loss of vision, compelled as I am to derive my knowledge of books no longer from the eye, but from the ear. The difficulty of recalling what has once escaped me, of reverting to or dwelling on the passages read aloud by another, compels me to give undivided attention to the subject, and to impress it more forcibly on my own mind by subsequent method and reflection. This same discipline of the memory is exercising its silent influence from the earliest days of the born blind. And the careful pains with which touch also gathers her knowledge, is productive of similar

results. The treasure thus gained is laid up by the blind with a method and order peculiarly their own; and hence the vigorous exercise of the principle of order and association, which so strongly characterises their intellectual and manual operations. This is again strengthened in the acquisition of any given subject by the memory, being loaded only with striking and important facts.

Some remarkable illustrations of this have been incidentally given in the previous Section. It is unnecessary to multiply them here. They meet us everywhere, as will be seen in the following pages. It may, however, further be observed, that by no portion of the blind is this faculty of memory more highly cultivated than by those who follow mechanical employments. Perhaps the highest example is that of the watchmaker. See him at his bench: before him are separately placed the various and minute portions of the machine he has to construct, and the numerous tools with which to execute it — each lying in its own particular place. Now, that he may make a ready use of these articles, there must be an exact transcript of that bench, and all that is on it, imprinted on his memory; and further, that he may construct those pieces into a

whole, there must not only be a clear remembrance of a watch in its finished state, of every wheel, balance, and minutest portion, but so exact a knowledge of the various relations of the individual parts, as shall enable its maker, not only to construct the machine, but afterwards to detect the cause of any derangement, and to correct it.

One diversity of simple memory the blind do not possess: the singular influence of local association, by which the seeing have impressed upon their memory facts or thoughts which the presence of the individual or place immediately recalls, is in a great measure unknown to the blind; their darkness precludes the image from being imprinted, and they are thus deprived of this incidental aid to memory.

Blindness is not less influential over the far higher quality of memory, styled *complex* — that which spontaneously suggests, according to analogy, new conceptions in any trains of thought out of the rich stores already possessed. The powers of suggestion here are infinitely more vigorous than in simple memory, and blindness renders that power keener and more concentrated. Hence have appeared, from among the intellectual and gifted blind, those so eminent

in the pursuit of abstract science — particularly mathematics.

Of the relative value of these two qualities of memory, Dr. Brown remarks: "The great difference is, that the wealth of the one is composed merely of those smaller pieces which are in continual request, and, therefore, brought more frequently to view; while the abundance of the other consists chiefly in those more precious coins, which are rather deposited than carried about for current use, but which, when brought forward, exhibit a magnificence of wealth, to which the petty counters of the multitude are comparatively insignificant."

Blindness is confessedly favourable to contemplative habits, and to the pursuits of *abstract science and pure speculation.* Undisturbed by external objects, the mind necessarily turns within, and concentrates its ideas on any point of investigation with ardour and perseverance. I am quite conscious of having experienced, in some degree, a similar influence, though the years of my darkness have hitherto been few. How much more must it be felt by those who have never known the light! It is said of Malebranche, that when he wished to think

intensely, he used to close his shutters in the day time; and many set apart the quiet of the evening hour, and in their calm retreat follow those intellectual pursuits, which the busier, brighter, hours of day seem almost to forbid. Some persons, indeed, would seem to demand the same exclusion of light for the successful delivery of digested thought.

The great French divine, Bourdaloue, to avoid any distraction which might confuse his imperfect memory, was compelled to preach with his eyes closed. Diderot frequently resorted to the same expedient, his language having then, according to La Harpe, under these circumstances, an eloquence sometimes reaching the sublime. I well remember a brother physician, who never rose to speak at our Medical Society but with closed eyes; and, with the exception of an occasional nervous wink, which had a very laughable effect, they never opened till he sat down again. Without this expedient, I believe he never could have spoken at all; and he always spoke well.

One of the most eminent illustrations of these remarks is embodied in the life of Nicholas Saunderson. He was born in the village of Thurston, Yorkshire, in the year 1682. Smitten by small-

pox in infancy, he was deprived, not only of sight, but of the organ itself. His father was an exciseman, and taught him the first principles of arithmetic; and at the Free Grammar School of Pennistone he acquired the foundation of that knowledge of the Greek and Latin tongues which he afterwards so far improved as to hear the works of Euclid, Archimedes, and Diophantes read in the original Greek. But from infancy his taste for mathematical study was strongly developed; and by mere dint of memory he soon became able to work even difficult problems with ease and correctness. If the old rule failed to satisfy him, he invented a new one; and, if perplexed by the intricacy of ordinary forms of solution, he boldly struck out some new and clearer path, which carried him directly to the object in view. Genius like this rarely waits for patronage or support; they came in due time—all the more opportunely, perhaps, because not at the very onset. The victory over some difficulties, and the endurance of many privations, had taught Saunderson a lesson which ampler means could not purchase, and given him moral courage and perseverance which no wealth can procure.

In the year 1700, when Saunderson was

eighteen years of age, Richard West, Esq., of Underbank, and a Dr. Nettleton, of whom we know nothing more than his name, observing his uncommon ability, undertook his instruction in higher branches of mathematical study; providing him with books, and, while they could, acting as his tutors. As may be easily imagined, the pupil had soon learned all the masters had to teach him. The school at Attercliffe, near Sheffield, for a time appeased, rather than satisfied his appetite; after which his mind rested fallow for a space in the country, he ever thirsting for new books and a reader. His father had a large family and a small fortune, utterly insufficient to give the young mathematician such an education at College as his merits deserved. Friends, therefore, suggested his being sent to Cambridge as a teacher of mathematics. About this time a fellow of Christ's College coming to Thurston, heard of the blind prodigy, but could not credit the report; he visited him for himself, and found that the half had not been told. Struck with his acquirements and accomplishments, he invited him to the University, and the Fellows of his College with great liberality provided him rooms, admitted him to the use of their library, and gave him every

other accommodation they could for the prosecution of his studies. Arrangements were soon made for Saunderson to give a course of lectures, and the subject selected was Optics. Sir Isaac Newton's "Principia" had just been published, but the work of the great philosopher was not duly appreciated, even by scholars. Among the very first to hail and estimate the immortal work was our blind lecturer, who used it as the basis of his prelections, thereby doing as much as any other man in England to introduce it into general favour. Curiosity attracted crowds to hear what a man could say concerning light, which he had never seen. The lectures filled his audience with admiration, and the perspicuity with which he communicated his ideas is said to have been unequalled. His merit was not long in being appreciated, both at Cambridge and among scientific men in general. He obtained the acquaintance of Sir Isaac Newton: his veneration for whom was repaid by that illustrious philosopher with so much regard, that, when Whiston was expelled from his chair in 1711, Sir Isaac exerted himself with all his influence to obtain the vacant situation for Saunderson. "His Latin inaugural speech was Ciceronian in style, and well worthy

of the occasion. It proved his scholarship, and delighted his pupils, to whom he continued to give up his time for many successive years. When George the Second visited the University in 1728, Saunderson had been for five years a married man, and lived quietly in the town. His classes were well attended, and his fame was increasing."* The king commanded his presence in the Senate House, where the University created him Doctor of Laws, as a proof of the value they set upon his acquirements and skill as a professor. His labours as a preceptor were diversified by the composition of several mathematical works, which took a high rank among books of this class. His Commentary on Newton's Principia was published, simply on the ground of its value, nearly twenty years after his death. He was enabled, by the force of his memory, to perform many long operations in arithmetic, and to carry in his mind the most complex geometrical figures. As however it became necessary to supply the want of vision by some symbols which might be sensible to the touch, he contrived a table, in which pins, whose value was determined principally by their relative position to each other, served him instead of figures; while for his dia-

* Land of Darkness and Light, p. 165.—Ed.

grams he employed pegs, inserted at the requisite angles, representing the lines by threads drawn around them. He was so expert in his use of these materials, that when performing his calculations he would change the position of the pins with nearly the same facility that another person would inscribe figures, and when disturbed in an operation would afterwards resume it again, ascertaining the posture in which he had left it by passing his hand carefully over the table. To such shifts and inventions does human ingenuity resort, when stimulated by thirst for knowledge; as the plant when thrown into shade on one side, sends forth its branches eagerly in that direction where the light is permitted to fall upon it. One fact worthy of remark is, that he found great difficulty in understanding a demonstration of Dr. Halley's, which appeared not very difficult to other geometricians; but when he had got a notion of what was wanted he worked out the same problem in his own way, so as to make it clear to others as well as to himself. Dr. Halley's statement, in fact, involved a *visual* idea, of which probably no one concerned, except the blind man, was aware.

"Thus nobly and honourably Saunderson toiled

on, with increasing fame, until 1739, when the effects of a sedentary life began to tell unfavourably on his constitution*;" and when scarcely passed its noon, he went down to the grave, lamented by all who knew him. There is one feature of his mental history to add, of melancholy interest. The blind, being necessarily insensible to the full grandeur of the Creator's works, and limited to the little world which they can span with their own arms,—their condition has been characterised by some as unpropitious to religious faith. Sentiments akin to these seem to have influenced the mind of the great mathematician, whose notions of a Deity appear to have been to the last exceedingly vague and unsettled. Dr. Holmes, the clergyman who visited him in his latter hours, endeavoured to impress upon him the evidence of a God, as afforded by the astonishing mechanism of the universe. "Alas!" said the dying philosopher, "I have been condemned to pass my life in darkness, and you speak to me of prodigies which I cannot comprehend, and which can only be felt by you, and those who see like you." When reminded of the faith of Newton, Leibnitz, and Clarke, minds from whom he had drunk so deeply of instruction, and for whom he entertained

* Land of Darkness and Light, p. 165.—Ed.

the profoundest veneration, he remarked, "The testimony of Newton is not so strong for me as that of Nature was for him; Newton believed on the word of God himself, while I am reduced to believe on that of Newton." He expired with this ejaculation on his lips, "God of Newton, have mercy on me!"

These, however, have been considered as the peevish ebullitions of a naturally sceptical and somewhat disappointed spirit, impatient of an infirmity which obstructed, as he conceived, his advancement in the career of science, to which he had so zealously devoted himself. It was in allusion to this, undoubtedly, that he depicted his life as having been "one long desire and continued privation."

A thoughtful and unbiassed consideration of the whole subject will nevertheless lead to a conviction, that the grievous calamity of the blind naturally disposes the mind to sober reflection and patient endurance, to soften, not to harden, the affections, while they are shielded from the temptations of life more than others. It is true that the natural world is hidden, but the unseen is open to the eye of faith, alike to the seeing and to the sightless. There is the same faithful monitor

within, the same revelation to guide, the same drawings of the bond which links all living souls together in one brotherhood; and if his eyes are never opened to see that glory, nor his heart softened to feel it, it is not from impediments cast in his path by his physical darkness.

The life of John Gough, if not so famous as Saunderson's, was even more remarkable. He was not only a great mathematician, but excelled as a zoologist and botanist. He was the son of a glover at Wyversdale, in Lancashire, and in his third year was deprived of sight by an attack of smallpox. The loss was not so total as to render him incapable of distinguishing day from night, but yet was sufficient to deprive him of all idea of colours, and of those images of external objects which properly constitute vision. His education was anxiously cared for; and, blind as he was, his progress was in no way retarded. He not only surpassed his companions in the accustomed studies of the school, but his education having been wisely based on a thorough grounded knowledge of Greek and Latin, the perusal of the ancient languages became to him in the maturity of life not only his study and relaxation, but their rich stores

fertilised and refreshed his mind in his darkness. From an early age, he showed a very decided taste for zoology, attained great proficiency in this branch of science, frequently correcting mistakes of keen sportsmen, as to birds and vermin. In time, he began to enlarge his knowledge of organic bodies, by extending his researches from the animal to the vegetable kingdom. To botanical pursuits, all the time he could spare from his necessary studies was most assiduously devoted, and as his ardour in cultivating this branch of science was never relaxed, he soon conquered most of the difficulties which the want of sight opposed to the gratification of this taste, and was eventually able to discriminate and arrange with accuracy every plant that came under his notice. Ordinary plants he could easily and readily distinguish by the touch of his fingers, and if any difficulty was met with, it was immediately solved by the application of the tip of the tongue to the several parts of the plant. Before he reached middle age, he acquired a profound acquaintance with Natural Philosophy and Mathematics, taking rank amongst the most eminent philosophers of the day. His contributions to the Manchester Philosophical Society,

on the highest and most abstruse points of Natural Philosophy remain to testify of his extraordinary attainments. These, and papers contributed to other journals, amount altogether to nearly fifty in number. Eminent as a teacher in mathematics, the following famous names may be cited among the limited number of his pupils: Whewell, second wrangler, master of Trinity; Dawes, fourth wrangler; King, senior wrangler; Gastrin, tutor of Jesus College, second wrangler; and Mr. Dalton, president of the Manchester Philosophical Society. The latter remarks: "At fifteen years of age I went as usher to my cousin's school at Kendal, and here my education really commenced, Providence throwing me in the way of the blind mathematician, Gough." One of his favourite recreations was fishing. Coleridge, noticing this in his Omniana tells us: "Some ten years back at Sowerby I met a man perfectly blind from infancy. His chief amusement was fishing on the wild, uneven banks of the Eden, and up the difficult mountain streams. His friend, a dexterous card player, also stone blind, knew every gate and stile of the district." The man he

alludes to was John Gough. "His face," he adds, "is all one eye."*

"Blindness," Swift says, "is an inducement to courage, because it hides the danger before us." The Dean is right, so long as the presence of danger is not realised. But blindness adds to its intensity, when the mind has it pictured as actually and immediately present. An interesting anecdote, given by Wilkinson in his "Tour to the British Mountains," fully bears out this remark. The blind man was Gough. "I was once spending a few days at the foot of Blengathray. A party of us on a Midsummer morning set off at four o'clock. To two of these individuals, the ascent of such a high and rugged mountain might have seemed impracticable. The lame and the blind, without extraordinary minds, would not have hazarded the attempt amid the rocky steeps of the mountain; but the company of genius and science was courted and not withheld on that occasion; and the first that was seen standing on the summit of the mountain was the lame, leaning on his crutch and staff. To the blind I attempted a description of the fearful precipice beneath us; but it was the

* "Silence and Darkness," by Rev. B. Johns, p. 72.—Ed.

first thing I repented of that day, when I saw him fall to the ground with dizziness, and cling to the earth and scream out, with the apprehension of tumbling down the rocks into the abyss below. Till then, I had thought that the idea of giddiness must be received through the eye; but certainly it was as vivid in the mind of our learned and accomplished companion from what he heard, as if he had seen terrors around him. But we now moderated our description, and only talked of extent and the appearance of distant objects."

Gough continued fully occupied in his duties as a teacher, and in his philosophical investigations, until the close of the year 1823, when indications of declining health showed themselves. He gradually sunk, and died on July 27th, 1825, in the sixty-eighth year of his age, and was buried at Kendal. Southey's lines commemorative of Gough are as just as they are beautiful:

> "Methinks I see him, how his eye-balls rolled
> Beneath his ample brow, in darkness pained,
> But each instinct with spirit, and the frame
> Of the whole countenance alive with thought,
> Fancy and understanding; whilst the voice
> Discoursed of natural or moral truth,
> With eloquence, and such authentic power,
> That in his presence humbler knowledge stood
> Abashed, and tender pity overawed."

Contemporary with Gough lived Dr. Henry Moyse. He was born at Kirkcaldy, in Fifeshire, in 1750, and lost his sight from small-pox at three years of age. He retained only one visual reminiscence, — that of a water-mill in motion; and it was a constant puzzle to him how the water flowed in one direction, and the wheel turned round in another. How far this one visual image, doubtless often presenting itself, had a directing influence upon his future tastes, it is impossible to say; but he early evinced a love for mechanical pursuits. While yet a mere boy, he produced an accurate model of a windmill, became a great adept in the use of edged tools; and, amongst other productions, manufactured a loom complete in all its appointments. This love of mechanism amused his leisure moments, while the skill he attained was of much use in his after professional career. He was sent to a good school (a rare advantage in those days), and he owed to the blessings of a sound foundation laid in this place the first steps of his future elevation. Thus, put in the right track, his perseverance and talent achieved greatness, and he became the architect of his own fortunes and fame. Distinguished at school for

his proficiency in mathematics, he was not satisfied till he made himself master of its highest branches; constructing for himself a system of palpable arithmetic, on a system somewhat different from Saunderson's, and possessing the advantage in point of neatness and simplicity. To natural philosophy and chemistry, however, he devoted the greatest part of his life, and thus obtained rank with the first philosophers of his day. He lectured on these subjects, not only in England, Scotland, and Ireland, but in the United States. His lectures were eminently popular, and their interest much enhanced by the blind man performing his own experiments; which he did with the greatest neatness, accuracy, and success. A member of the Manchester Philosophical Society, he enriched the collection with several valuable papers on chemistry and other branches of physical science.

The exquisite keenness of the senses of touch and hearing has already been alluded to. An amusing circumstance, however, may be added, related by himself, in connexion with his perceptions, proving that the blind man may sometimes have the advantage of the seeing. Being over-

turned in a stage-coach, one dark rainy evening, in England, and the carriage and four horses thrown into a ditch, the passengers and driver, with two eyes a-piece, were obliged to apply to him, who had no eyes, for assistance in extricating the horses. "As for me," said he, "after I had recovered from the astonishment of the fall, and discovered that I had escaped unhurt, I was quite at home in the dark ditch. The inversion of the order of things was amusing. I, that was obliged to be led about like a child in the glaring sun, was now directing eight persons to pull here, and haul there, with all the dexterity and activity of a man-of-war's boatswain." His habits were somewhat peculiar, but most simple; he was entirely unacquainted with the use of spirits or fermented liquors; he never touched animal food, and, as a vegetarian, was very partial to a sea-weed known by the name of "dulse." This was boiled and dressed up with a little butter, which, with a draught of spring water, was the only luxury in which he indulged. As a man, he was most amiable and beloved, ever cheerful and happy, and, excelling in the charms of conversation, gave pleasure to all around him. An admirable

performer, music was the great solace and refreshment of his leisure hours. He was indeed a striking instance of the power the human soul possesses of finding sources of enjoyment under the most rigorous calamity. He supported himself entirely by his industry and genius, and bequeathed to his brother a considerable sum realized by professional labour. He died in his fifty-seventh year.

John Metcalf (already mentioned as the blind guide) is a remarkable instance of native genius overcoming obstacles apparently the most difficult of all others to a blind man. His pursuits differed from those whose lives have just been given, but his intellectual faculties were similarly influenced, though their fruit was long delayed. Deprived by smallpox of sight at so early an age as to know nothing of light and its various effects, his boyhood and youth were for the most part spent in as large an amount of fun, frolic, and foolhardiness as fell to the lot of any one of his companions having eyes. At a very early age, without help or guidance, he freely found his way about his home and its neighbourhood, and was one of the foremost in the games of his companions. An expert swimmer, every one

bathing carefully avoided him; it being his delight to seize and plunge them to the bottom, and then swim over them by way of diversion.

When not fifteen, two men being drowned in the deeps of the river Nid, Metcalf was employed to seek for their bodies, and succeeded in bringing up one of them. In the same river two packs of yarn being accidentally sunk in twenty-one feet water, he undertook to recover them. Procuring some cart-ropes, fixing a hook at one end, the other being held by some persons on a bridge immediately over the spot, he descended, and by degrees brought up the whole of the goods. A bold rider, he was constantly in the habit of following the foxhounds; and what is more wonderful, we do not read of his meeting with an accident. On one occasion he rode a race on his own horse, and, though great odds were laid against him on account of the circular nature of the course, came off winner. In 1745 he enlisted in Thornton's troop, at the breaking out of the rebellion, and actually fought at the battle of Culloden, as well as in other engagements. By turns he was the guide over intricate roads in the night, and when the tracks were covered with snow, acted as driver of a stage waggon between York and Knaresborough, the

streets of which city he had managed to know well. He was, moreover, a principal violin performer of the assembly rooms at Harrowgate; a horse dealer; and a petty merchant. The hour came, however, when this poor man found his true position, and those intellectual powers with which God had endowed him, but which had remained so long dormant, came into full play. What occasioned the first unfolding of these faculties does not appear. He had, however, for some time been studying mensuration, of which he became a thorough master, his calculations being made in a manner peculiar to himself; this was followed up by the study of engineering; and we soon find him engaged as a projector and surveyor of roads and bridges. Amongst other works, he built Boroughbridge, and made roads through Yorkshire, Lancashire, Derbyshire, and Cheshire. Dr. Bew, the intimate friend of Dr. Moyse, was well acquainted with Metcalf, and thus speaks of him: "With the assistance only of a long staff, I have several times seen this man traversing the roads, ascending precipices, exploring valleys, and investigating their several extents, forms and situations, so as to further his projects in the best manner. The plans which he designs and the estimates he

makes are done in a method peculiar to himself, and which he cannot well convey the meaning of to others. His abilities in this respect are, nevertheless, so great, that he finds constant employment. Most of the roads over the Peak in Derbyshire have been altered by his directions, particularly those in the vicinity of Buxton." Of the latter undertaking, Dr. Bew subsequently remarks: "The blind projector of roads could reply to me, when I expressed myself surprised at the accuracy of his discriminations, that there was nothing surprising in the matter. 'You, Sir, can have recourse to your eyesight when you want to see or examine anything, whereas I have only my memory to trust to. The readiness with which you view an object at pleasure prevents the necessity of fixing the ideas in your mind, so that the impressions in general become quickly obliterated. On the contrary, the information I possess being acquired with great difficulty, is on that very account so firmly fixed on the memory as to be almost indelible.' I afterwards made some inquiries respecting a new road which he was making. It was really astonishing to hear with what accuracy he described the courses, and the nature of the different soils

through which it was conducted. Having mentioned a boggy piece of ground it passed through, he observed that that was the only place he had doubts about, and that he was apprehensive they had, contrary to his directions, been too sparing of their materials. This extraordinary man lived to the advanced age of eighty-five, possessed of his mental faculties to the last, and died in 1802. The erratic darings of his early life serve but to confirm Swift's proposition; but what was accomplished in its maturity is really very wonderful."

Blindness would seem to be propitious also to the exercise of the *inventive* powers. Hence poetry, from the time of Thamyris and the blind Mæonides, down to the Welsh harper and the ballad-grinder of our day, has been assigned as the peculiar province of those bereft of vision —

> "As the wakeful bird
> Sings darkling, and in shadiest covert hid,
> Tunes her nocturnal note."

The poetic tendencies of the born blind (tendencies never realised by the deaf-mute) may be traced to the perfect mastery which they have over words, and to their sole reliance on the ear, as the vehicle of pleasurable sensations,

rendering them exquisitely alive to harmonious sounds and numbers. They eagerly receive all that is read to them, and in the absence of this resource, poetic composition becomes the delightful occupation and solace of their solitude; whilst, however, the born blind have written much, they can never attain high perfection in the poetic art. The greatest epic poem of antiquity, indeed, was probably, as the modern was certainly, composed in darkness. But, though written in darkness, it is clear beyond a doubt that the authors once enjoyed the light. The minute fidelity of description everywhere to be observed, and so admirably sustained throughout Homer's writings, could scarcely have been possible to one born blind, though possible to one who had become blind when of adult age. One of his many commentators, Mr. Payne Knight, in his inquiry into the "Principles of Taste," remarks: — "The author of the 'Iliad' has described with astonishing accuracy everything in which error or inaccuracy might be detected, either by experience or demonstration. The structure of the human body, the effects of wounds, the symptoms of death, the actions and manners of wild beasts, the relative situations of cities and countries, and the

influence of winds and tempests upon the waters of the sea, are all described with a precision which not only no other poet, but scarcely any technical writer upon the respective subjects has ever attained. The hyperboles are all in the actions of his gods and heroes, in which exaggeration could not be detected; but in every object and every circumstance which it was possible for his audience practically to know, the most scrupulous exactness in every minute particular is religiously observed. There are nearly twenty descriptions of the various effects of wind upon water; all different, and all without one fictitious or exaggerated circumstance." Amongst a variety of circumstantial evidence, showing that he must have examined with accurate and keen attention the scene of his greatest epic poem will be found the following pleasing passage in "Eöthen:"—"While we were at Constantinople, Methley and I had pored over that map together; we agreed that whatever may have been the exact site of Troy, the Grecian camp must have been nearly opposite the space betwixt the islands of Tenedos and Imbros. But Methley reminded me of a passage in the 'Iliad,' in which Jove is represented as looking at the scene of

action before Ilion from the island of Samothrace. Now, Samothrace, according to the map, appeared to be not only out of all seeing distance of the Troad, but to be entirely shut out from it by the intervening Imbros, which is a larger island, stretching its length right athwart the line of sight from Samothrace to Troy. Piously allowing that the eagle eye of Jove might have seen the strife even from his own Olympus, I still felt that if a station were to be chosen from which to see the fight, old Homer, so material in his ways of thought, so averse from all haziness and over-reaching, would have meant to give the Thunderer a station within the reach of men's eyes from the plains of Troy. I think that this testing of the poet's words by map and compass, may have shaken a little of my faith in the completeness of his knowledge. Well, now I had come, there to the south was Tenedos, and here at my side was Imbros, all right, and according to the map; but aloft over Imbros—aloft in the far away heaven, was Samothrace, the watch-tower of Jove! Nobody, whose mind had not been reduced to a most deplorably logical condition, could look upon this beautiful congruity betwixt the 'Iliad' and

the material world, and yet have to suppose that the poet had learned the features of the coast from mere hearsay; now then I believed — now I knew that Homer had passed along here, — that this vision of Samothrace overtowering the nearer island was common to him and to me." Almost every page in "Paradise Lost" bears proof, that he who wrote it once saw, were such proof wanting. Now, it is easy to understand how the man who has once seen can recall and embody forth in his conceptions new combinations of material beauty; and thus the immortal productions of Homer and Milton are no mystery to us. Not so the born blind man: excluded from the sight of coloured nature, it is scarcely possible for him to describe it; we know that in his case there can be little in the description, either original or true. A large proportion of the pupils in deaf and dumb establishments, that must have a vocation, desire to be artists. Some of them draw with considerable skill, but as artists utterly fail. The really artistic qualities of mind are wanting. Where the power to represent is greatest, they still have nothing to represent, but what is lowest and most obvious. Just, then, as a deaf-mute can know nothing of

the deepest things in the human mind and life, since these deepest things are awakened only by vocal intercourse; no more can the born blind know of golden and crimson clouds, and gleams upon the water, or the lightning's flash illuminating the snowy peaks in the darkness of night.

But, though his narrow circle excludes all visible symbols of the material world, yet we have, nevertheless, eminent examples of his excelling in descriptive poetry. Blacklock's verses abound in the most agreeable and picturesque images, though he could have formed no other idea of colours than was conveyed by some chance association.* It was thus that he studied

* Dr. Blacklock remarked on one occasion to Mr. Spence, that the connections which he had made to the names of colours were chiefly of a moral kind; and that he made them very early. With *red*, he had connected the idea of courage, and called it "a very bold colour." He gave a mixed character of yellow, partly good and partly bad; and on Mr. S. saying, that there was some foundation for that in reality, for that the deeper yellows were often disagreeable, and the paler much more agreeable, he said, "The latter must be so, because they partook more of light." To green he had annexed the ideas of peace and serenity. Blue, he said, must be pleasing, because it was the colour of the *heavens*; and purple, because it was like the dawn of day. To white, he said, he had annexed the idea of joy; and to black, that of melancholy.

the various aspects of nature, and read in them the successive revolutions of the seasons, their freshness, their prime, and decay.

The following descriptive passages will suffice to show how skilfully his imagination could draw and colour the visible images which his ear had so largely gathered:—

"Wild gleams the purple evening o'er the plain."

"Ye vales, which to the raptured eye
Disclosed the flowery pride of May;
Ye circling hills, whose summits high
Blush'd with the morning's earliest ray."

"Let long-lived pansies here their scents bestow,
The violets languish and the roses glow;
In yellow glory let the crocus shine,
Narcissus now his love-sick head recline;
Here hyacinths in purple sweetness rise,
And tulips tinged with beauty's fairest dyes."

"On rising ground, the prospect to command,
Untinged with smoke, where vernal breezes blow,
In rural sweetness let thy cottage stand;
Here wave a wood, and there a river flow."

"Oft on the glassy stream, with raptured eyes,
Surveys her form in mimic sweetness rise;
Oft as the waters pleased reflect her face,
Adjusts her locks, and heightens every grace."

"Oft while the sun
Darts boundless glory through the expanse of heaven,
A gloom of congregated vapours rise,
Than night more dreadful in his blackest shrouds,

> And o'er the face of things incumbent hang,
> Portending tempest; till the source of day,
> Again asserts the empire of the sky,
> And o'er the blotted scene of nature throws
> A keener splendour."

The life of this amiable man, an accomplished scholar as well as poet, has been so frequently presented to the public, that a very brief sketch will suffice for our present purpose. He was born at Annan, in Dumfrieshire, in 1721, and at six months old lost his sight by small-pox. His boyhood and youth were spent under his father's roof,—a poor man, but who made his blind boy the object of his tenderest care and solicitude. Every leisure hour was spent in reading to him, and a strong taste for poetry early developing itself, the works of Milton, Spenser, Pope, Prior, Addison, and their own countryman Ramsey, were among their frequent companions. The boy's kind and gentle disposition also gained the hearts of his schoolfellows, who were very assiduous in their good offices, particularly in reading to instruct and amuse him. By these and other such means considerable intellectual progress was made; and he became a versifier as early as his twelfth year. At the age of nineteen, he had the grievous misfortune to lose his

father, who met with a violent and instant death by the fall of a malt-kiln. Thus deprived of that support on which his youth had leaned, destitute of almost every resource which industry affords to those who have the blessing of sight, with a body naturally feeble and delicate, and with a mind peculiarly susceptible, this bereavement was doubly severe. He thus touchingly alludes to his loss.

"Where, now, ah! where is that supporting arm
Which to my weak unequal infant steps
Its kind assistance lent? Ah! where that love,
That strong assiduous tenderness, which watched
The wishes yet scarce form'd; and, to my view,
Unimportuned, like all-indulging Heaven,
Their objects brought? Ah! where that gentle voice
Which, with instruction soft as summer dews,
Or fleecy snows, descending on my soul,
Distinguish'd every hour with new delight?
Ah! where that virtue, which, amid the storms,
The mingled horrors of tumultuous life,
Untainted, unsubdued, the shock sustain'd;
So firm the oak, which, in eternal night,
As deep its roots extend, as high to heaven
Its top majestic rises; such the smile
Of some benignant angel, from the throne
Of God dispatch'd, ambassador of peace;
Who on his look imprest his message bears,
And pleased, from earth averts impending ill.
Alas! no wife thy parting kisses shared;
From thy expiring lips no child received
Thy last dear blessing and thy last advice.

Friend, father, benefactor, all at once,
In thee forsook me, an unguarded prey
For every storm, whose lawless fury roars
Beneath the azure concave of the sky,
To toss, and on my head exhaust its rage."

Providence, however, at this, the moment of his greatest trial, did not leave him friendless. Some of his poetical compositions and the helpless condition of their author, fortunately fell under the notice of Dr. Stevenson. The doctor was at that time one of the medical professors of the University, and having enrolled Blacklock's name as a divinity student, during the whole of his College life, a period of ten years, generously defrayed his expenses. While resident at Edinburgh, the first edition of his poems was published. They found much favour with the public. A second and third edition were called for, and amongst other literary men they attracted the notice of the then Professor of Poetry at Oxford, the Rev. Thos. Spence, who published a critical review of them, with a sketch of their author's history, which contributed greatly to his popularity. Blacklock remained at Edinburgh until he had finished the usual course of study prescribed to candidates for the ministry in the

Scotch Church, and having been a few years afterwards licensed by the Presbytery as a preacher, he was inducted to the church of Kirkcudbright, on the presentation of the Earl of Selkirk. This appointment, however, on account of his blindness, was so violently opposed by the parishioners that, after a legal dispute of neary two years, he resigned his right to the living, and accepted a moderate annuity in its stead. The remaining portion of his life was devoted to teaching and literary labour; and among other contributions of his pen is the well-known article, entitled "The Blind," in the Encyclopædia Britannica. In 1744 he received the degree of doctor in divinity, and died in 1791, at the age of seventy, a philosopher, scholar and poet, though not a mathematician. Dr. Blacklock also displayed in full measure the intellectual characteristics of his class. With his favourite pursuits, he associated a great love for music, and thus found much to soothe and comfort him under the pressure of his calamity. The most prominent and interesting feature, however, of his intellectual history is the degree of excellence which he obtained as a poet, particularly in descriptive poetry.

"For oh! while others gaze on nature's face,
The verdant vale, the mountains, woods, and streams;
Or, with delight ineffable, survey
The sun, bright image of his parent God;
The seasons, in majestic order, round
This varied globe revolving: young-eyed spring
Profuse of life and joy: summer, adorn'd
With keen effulgence, bright'ning heaven and earth:
Autumn, replete with nature's various boon,
To bless the toiling hind: and winter, grand
With rapid storms, convulsing nature's frame.
Whilst others view heaven's all-involving arch,
Bright with unnumber'd worlds, and, lost in joy,
Fair order and utility behold;
Or unfatigued, the amazing chain pursue,
Which, in one vast all-comprehending whole,
Unites the immense stupendous works of God,
Conjoining part with part, and through the frame
Diffusing sacred harmony and joy;
To me those fair vicissitudes are lost,
And grace and beauty blotted from my view.
The verdant vale, the mountains, woods, and streams,
One horrid blank appear, the young-eyed spring,
Effulgent summer, autumn deck'd in wealth
To bless the toiling hind, and winter grand
With rapid storms, revolve in vain for me;
Nor the bright sun, nor all-embracing arch
Of heaven, shall e'er these wretched orbs behold."

Nor was he behind others in the cultivation of the senses left to him; for to the exquisite keenness of the sense of hearing, was he, by God's blessing, on one occasion mainly indebted for the preservation of his life. Unconsciously the blind

man approaches a deep well — his foot was on its very edge, and another step would have precipitated him into the depths below, when he was warned of his imminent danger by the sound of the feet of a favourite lap-dog, on the thin and fragile boards which covered it.

" Where am I! — O eternal power of heaven,
Relieve me; or, amid the silent gloom,
Can danger's cry approach no generous ear,
Prompt to redress the unhappy? Oh my heart,
What shall I do, or whither shall I turn?
Will no kind hand, benevolent as heaven,
Save me, involved in peril and in night?
Erect with horror stands my bristling hair;
My tongue forgets its motion; strength forsakes
My trembling limbs; my voice, impelled in vain,
No passage finds; cold, cold as death, my blood,
Keen as the breath of winter, chills each vein;
For on the verge, the awful verge of fate,
Scarce fix'd, I stand; and one progressive step
Had plunged me down, unfathomably deep
To gulphs impervious to the cheerful sun
And fragrant breeze. . . . . .
Come, then, my little guardian genius, clothed
In that familiar form, my Phylax, come;
Let me caress thee, hug thee to my heart,
Which beats with joy of life preserved by thee.
Had not thy interposing fondness stay'd
My blind precipitation, now, ev'n now,
My soul, by nature's sharpest pangs expell'd
Had left this frame; had pass'd the dreadful bound
Which life from death divides — divides this scene

From vast eternity, whose deep'ning shades,
Impervious to the sharpest mortal sight,
Elude our keenest search.— But still I err;
Howe'er thy grateful undesigning heart,
In ills foreseen, with promptitude might aid,
Yet this, beyond thy utmost reach of thought,
Not ev'n remotely distant couldst thou view.
Secure thy steps the fragile board could press,
Nor feel the least alarm where I had sunk;
Nor couldst thou judge the awful depth below,
Which, from its watery bottom, to receive
My fall, tremendous yawn'd. Thy utmost skill,
Thy deepest penetration, here had stopp'd
Short of its aim; and, in the strong embrace
Of ruin struggling, left me to expire.
No—Heaven's high Sov'reign, provident of all,
Thy passive organs moving, taught thee first
To check my heedless course; and hence I live.

"Eternal Providence! whose equal sway
Weighs each event; whose ever-waking care,
Connecting high with low, minute with great,
Attunes the wondrous whole, and bids each part
In one unbroken harmony conspire;
Hail! sacred source of happiness and life!
Substantial Good, bright intellectual Sun!
To whom my soul, by sympathy innate,
Unwearied tends, and finds in Thee alone
Security, enjoyment, and repose."

He was a man of great moral worth, of amiable and sweet disposition, and patiently enduring under every misfortune. The kindliness of his heart exhibits itself in the general colouring of

his works, and breaks out here and there in almost every one of his principal poems. The following picture of filial attention and love to a dying father, has much force and sweetness in it.

"Whether the day its wonted course renew'd,
Or midnight vigils wrapt the world in shade,
Her tender task assiduous she pursued
To soothe his anguish, or his wants to aid;
To soften every pain,
The meaning look explain,
And scan the forming wish ere yet express'd.
The dying father smiled
With fondness on his child,
And when his tongue was mute, his eyes her goodness bless'd."

The remarks upon Blacklock's poetry equally apply to that of the authoress of "Atteghéi, and other Poems." Frances Brown may fairly lay claim to a fine poetical sense, a great sensibility to melody, and at times, a rich and deep-toned utterance; though there is still wanting some originality of thought. She has caught the sweet tones of others, and her models are obvious enough.

The musical faculty is still more largely influenced by blindness than the poetic.* There is

* Handel, the great master, was wont to frequent the church of St. Andrew's, Holborn, there to listen to the sublime voluntaries of his blind friend James Stanley.

scarcely an educated born blind person who is not a proficient in music. In the various institutions, most of the pupils are instructed in this art, and though the gift of what is called natural ear for melody is not the endowment of all, it would seem to exist so far in each individual as to be capable, by a suitable cultivation, of affording a high degree of pleasure to himself and others. But where mind, imagination, and genius are possessed, a high degree of excellence is attained. At the Blind School in St. George's Fields, under the able direction of Mr. Turle of Westminster Abbey, many of the pupils have attained considerable skill both in vocal and instrumental music. A blind choir, guided and accompanied by a blind organist, performing choruses and solos from the works of Handel, Mozart, Mendelssohn, Bach, and other choice masters, is indeed, a surprising spectacle; of which however, our readers may themselves judge, by attending one of their usual monthly concerts at the school.*

In all ages the blind have excelled in this art. Among the mural tablets of the ancient Egyp-

* Johns's "Land of Silence and the Land of Darkness."

tians, there is one copied by Rosellini and Sir J. G. Wilkinson, which is among the very few exhibiting anything of character or sentiment, or is able to inspire any emotion. It is from the tombs of Alabastron, and represents a blind harper sitting crossed-legged on the ground, attended by several other blind men similarly seated, who sing and beat time with their hands. They are evidently professional musicians; and from this we learn that music was a source of employment in Egypt to the blind, who in that country have always been frightfully numerous. That it was no less a source of enjoyment, is manifest in their countenances, which are lighted up with animation and interest in their work, while the artist has contrived that not only the eyes, but every feature of the face, and the position of the heads, should express the blindness of their condition.

Great as is the influence of music on the intellectual and moral being of the seeing, it is still greater on the sightless. The natural sensitiveness of the ear to melody and harmony, even in those who have sight, seems to be heightened by darkness. I once listened to the celebrated organ at Haarlem, the church being in utter darkness,

and, consequently, avoided all intrusion of place, instrument, or performer, my travelling companion and myself being the only listeners. It was the highest conceivable sensuous pleasure I ever enjoyed; and, though thirty years have passed since that evening, those melodious sounds still float deliciously in my remembrance. The mechanical and formal appliances by which this wonderful instrument appealed to my emotions were shut out by the darkness, and hence the more surely and profoundly were they stirred by it. The same deep emotional feelings have been awakened only by my recent blindness, although, during the long interval, instrumental music of the first excellence has been listened to, and, among other instruments, the equally celebrated organ at Friburg. The mere closing the eyes will not ensure the same result; the mere act of the will to close them, and keep them shut, is of itself sufficient to interfere with that influence on the emotions produced by the darkness of necessity. In the one case, there is a restraint put upon the full play of the emotions; in the other, unfettered and free, the soul floats, as it were, in a sea of melodious harmony. This, to me at that time a purely accidental advantage, is

the condition of the born blind, from their earliest days; and it is doubtless owing to this influence that they display so strong a taste and inclination for music. The language of words, so to speak, is addressed directly to the mind; whilst the language of tones, or music, asserts its claims over the heart and soul, and operates indirectly through them on the mind. That our feelings, however, may be affected by tones is only to be explained in this manner: God gave man at his creation the capacity to communicate his thoughts and feelings, and to excite similar thoughts and feelings in others, by certain applications and alternations of voice and tone, corresponding with certain emotions of the soul. Of all man's senses, the sight and hearing are those through which the greatest influence upon the mind and heart is produced; and these, therefore, constitute the most powerful springs of the moral and mental perceptions, actions, and judgments of mankind. Now, in the man born blind, the inlet of sight being closed, his sensibilities are compressed into a comparatively narrow channel, and his attention concentrated on the impressions received through other senses. All perceptions of coloured nature are shut out, and a large portion

of the remaining perceptions finding entrance through the ear, this organ acquires, by such increased exercise, an extraordinary degree of acuteness; and it is not unfair to suppose that a corresponding degree of increased sensibility is induced in the class of emotions influenced by it. Moreover, in the pursuit of this art, no obstacle, however great, can obstruct the progress of the blind man. He applies to its study an organ stimulated by necessity, constantly exercised, and refined by frequent use. The pleasure thus enjoyed by one blind from infancy, has been well described, and, in his description, we perceive with what difficulty one who has never seen the coloured world seeks to portray its images.

"I have been blind from my earliest years," says Monsieur Brunel, of Zurich, "and have heard much of the beauty of nature, of light, of the brilliancy of colours, and have, intuitively, drawn images of them; which must, of course, have fallen far short of the reality; inasmuch as I never could have extracted, out of the monotonous darkness which surrounds me, a true tableau of the coloured world. If, however, I possessed idiom sufficient, I would strive to make myself understood by the use of analogies, seeking the

terms of my comparison from the senses which I enjoy. Happily, the Creator has gifted me with a delicate ear, with a special aptitude for music, with a just discernment in all that belongs to the domain of sounds, and in developing the sentiment of the beautiful in music, an entire world, grand and magnificent, opens itself to me. I would almost venture to say, that I have an intuitive perception of that which I see not. When I hear the chorus of Haydn's 'Spring,' I feel myself as if transported into a field, enamelled with the most beautiful flowers. 'Il me semble entendre la tige croître, les feuilles bruire : ' and in my soul is painted a fairer landscape, 'un jeu de couleurs,' such, doubtless, as no man has ever seen. These high enjoyments are the real fête hours of my life." *

The realisation of such scenes, by music, in a man born blind, can alone be admitted on the supposition of a fore-knowledge of the subject to be depicted. In no other way can we account for the interpretation of its passages by him, as they passed along. One, however, of music's most highly gifted sons, himself blind from

* L'Institute des Aveugles de Zurich, p. 37.

adolesence, attributes to instrumental music the high prerogative, not merely of expressing every sensation of the human heart, but also of portraying, in a manner universally intelligible, the incidents of social life, the glad and sad occurrences of earthly existence, its occupations and repose, its perfect tranquillity, nay, the very neighbouring landscapes, with greater power and pleasure to the feelings even than painting and poetry. In proof of this opinion, he gives the following illustration: — "In the introduction to the 'Norma' of Bellini may be found the representation of a neighbourhood in the most exalted style of art. Beginning with deep tones, it unfolds itself in gloom-inspiring harmonies, and truly reflects the impression which the gloom of an extensive wood produces on our feelings. Occasional glancing and disconnected tones appear to betoken light, breaking through the darkness of the grove; and thus is the first drop-scene of the opera — the grove of sacrifice — fitly delineated. Assuredly the striking qualities of this tone-picture will still more forcibly suggest themselves to the reader, when I mention the exclamation of a person deprived of sight, who, on first hearing this introduction,

instantly exclaimed that the scene then actually represented on the stage must be a forest."* The noble writer who penned these lines is doubtless the blind man who discovered the scene to be a forest, and there is nothing at all surprising in the fact; for with an ear cultivated to the highest degree of delicacy, a memory stored with images of natural beauty, and a heart overflowing with sympathy, the slightest, faintest strain of association — a passage, note, or tone, indicating any one of the characteristic features of forest scenery — might suffice, —

> "And as a fort to which beleag'rers win
> Unhoped-for entrance through some friend within,
> One clear idea, center'd in the breast
> By memory's magic, lets in all the rest."

That many sounds with their varieties may be portrayed and brought home to the mind and heart of the blind man, through the medium of instrumental music, I have no doubt. Without any previous knowledge of what was about to be played, I once heard Picco, the blind Sardinian Minstrel, give what I suppose may be called the wild music of his native mountain woods and valleys. I distinguished most distinctly the soft

* "Ideen über Musik," by Prince George of Denmark.

rippling of the brook, and the dash of the waterfall, the distance echoing the three or four notes of the scale, in sweetest, clearest melody; the song of birds; the nightingale's lovely, solitary lay, the thrush's rich and varied song, the skylark —

> "That rests not on the leafy spray,
> To warble his exulting lay,
> But high above the morning cloud
> Mounts in triumphant freedom proud,
> And swells, when nearest to the sky,
> His notes of sweetest ecstasy."

All were given with a fidelity and exactness, which alone could have been commanded by a gifted and true artist, and truly appreciated by the listener, whose blindness had caused him to make the originals his familiar and pleasant study. But to infer from the foregoing, or any other anomalous instances, that a succession of sensible images, including both sounds with their varieties, and landscapes with their details, may be brought home to the mental vision of the listener, whether blind or not, is as likely as that Locke's blind man should have given a more accurate definition of scarlet, than the sound of a trumpet; or another blind man, when he compared it to a pack of hounds in full cry.

The historical records that remain to us of blind musicians of the past, are few and scanty. Among the crowd of names that greet us at the close of the seventeenth and the beginning of the eighteenth centuries, is that of Carolan, the Irish harper. He was one of the last and most famous of the Irish bards, and his compositions have been as much admired for their extraordinary variety, as for their exquisite melody. He is said to have composed no less than four hundred pieces. A poet, as well as a musician, he has left coupled to his own music many fine lyrics; and remnants of these verses are still to be heard among the peasants of Westmeath, of simple, but touching beauty. Born in 1670 at Hobber, Westmeath, where his father was a peasant farmer, and deprived of sight by small-pox in infancy, he early displayed a taste for music. The harp becoming his favourite instrument, he seems to have spent his time much after the fashion of the ancient minstrels, in wandering through the country, sometimes on horseback in prosperous times, and sometimes on foot, stopping here and there as chance led him, and ready to sing of love or of sorrow, as his entertainers required. It was during these peregrinations that Carolan com-

posed those airs which are still the delight of his countrymen. He thought the tribute of a song due to every house in which he was entertained, and he never failed to bestow it, choosing for his subject either the head of the family or one of its loveliest members.

An Italian musician of high repute residing at Dublin, doubting the exalted opinions entertained of Carolan's musical talents, put it to the following test. He singled out an elegant piece of music in the Italian style; but here and there he either altered or mutilated it in such a manner, that none but a real judge could detect the alterations.

Carolan, quite unaware that it was intended as a trial of his skill, gave the deepest attention to the performer who played the piece thus altered in his presence. He then declared it to be an excellent piece of music; but, to the astonishment and satisfaction of the company, added humourously, "but here and there it limps and stumbles." He was then requested to rectify the errors, which he accordingly did. In this state, the piece was sent back to Dublin; and the Italian Professor no sooner saw the amendments, than he cordially pronounced Carolan to be a true musical genius.

A remarkable instance of the exquisite sense of touch is told of him. "When he grew to manhood, there was a time when his harp would sound only of love, under the impulse of a passion he had conceived for Bridget Cruise. The lady did not unite her lot with his; and after a while he loved and married another, named Mary Maguire. Many years after, he went on a pilgrimage to St. Patrick's Purgatory, a cave in the island of Loughdery, Donegal; and on returning to the shore, met several pilgrims waiting the arrival of the boat that conveyed him. On assisting some of these into the boat, his hand unexpectedly met one which caused him to start, and he instantly exclaimed: "This is the hand of Bridget Cruise." His sense of feeling had not deceived him. It was the hand of her he had once loved so passionately. I had this anecdote from his own mouth," says the narrator, "and in terms which gave me a strong impression of the emotion which he felt on meeting the object of his early affection." He was an old man at his death in 1738.

At the beginning of the last century appeared one of the most eminent of blind musicians. With him music was not only a pursuit, but an absorbing passion, and such was the eminence he

attained that his contemporaries, Handel and Guzzini, were wont to say of him, that as a composer few equalled him, and as a performer he had no superior. Born in 1713, John Stanley, when only two years of age, lost his sight. Crossing a marble hearth, with a china basin in his hand, the child fell, and the result of the accident was total blindness. At a very early age he evinced a love for music, and to this taste every encouragement was given with the hope that it might prove a source of amusement. His following the art as a profession was from his untoward circumstances never contemplated. Rapid progress however was made, the best masters obtained, and his proficiency such, that at the age of eleven he obtained the situation of organist at All Hallows, Bread Street. In 1724, being then only thirteen, he was promoted to the like duty at St. Andrew's, Holborn, in preference to a large number of competitors. And in 1734 the Benchers of the Inner Temple elected him one of their organists, which, with the previous appointment, he held during the remainder of his life. He was also master of the King's band; and after Handel's death, for many years was the conductor of the Oratorios at Covent Garden

in Lent. Besides numerous compositions for the organ, he was the author of two Oratorios, Jephthah and Zinoi. So greatly did his professional brethren delight in his performances, that it was a common occurrence at St. Andrew's or the Temple to see forty or fifty of them gathered round the altar, at the close of the service, to hear the voluntary; and Handel among their number. In proof of his masterly management of the organ, it is related that at the performance of one of Handel's "Te Deums," finding that the organ was half a note too sharp for the other instruments, he, without the least premeditation, transposed the whole piece, and with as much facility and address as could have been manifested by one possessed of sight. This was the more remarkable, since the key into which it was transposed, that of C sharp major, from having seven sharps in the clef, is so exceedingly difficult that it is scarcely ever made use of. It is probable there was not then in the kingdom any performer besides himself who would have attempted it, even though he had previously taken the trouble of writing out the whole part. So great was his memory that he has been heard to play, note for note, all Corelli's and Geminiani's

twelve solos with the most perfect correctness. He was not only a great musician, but in general accomplishments and acuteness he was one of the most remarkable of blind men on record. His favourite amusements were playing at billiards, Mississippi, and skittles, at which games he usually beat his competitors. He played at whist with great readiness and judgment; each card was marked at the corner with the point of a needle; but these marks were so delicately fine as scarcely to be discerned by any person not previously apprised of them. His hand was generally the first arranged, and he would often complain of the tediousness of his party in sorting their cards. Dr. Alcock states that when he first became resident with him as a pupil, being a stranger to London, that one of his first proceedings was to show him the way through the private streets of Westminster, the intricate passages of the City, and the adjacent villages, both on horseback and on foot. And when at a later period of his life he retired to Epping Forest, he would accompany his friends on horseback in their morning ride, and take them the pleasantest road, and point out the most agreeable prospects. Of a cheerful, happy disposition, he

was greatly beloved by all who knew him, and his loss was deeply felt by them, and long regretted by the musical world. He died in the 73rd year of his age, and is interred at St. Andrew's, Holborn.

More than one woman, under the pressure of a life-long darkness, has displayed a full measure of patient endurance, and a noble enthusiasm only heightened by obstacles. Among these, I shall only name Madame Von Paradisi, a German lady who lost her sight at the age of between two and three years. Being, however, providentially furnished with good instructors, and rapidly developing under their tuition a precocious and genuine genius for music, she pursued both vocal and instrumental studies with such success, that when only eleven years old, she sang in public before the great empress, Queen Maria Theresa. The touchingly sweet voice, and skilful, though artless execution of the child so won upon the true womanly heart of the Empress, that she bestowed upon the singer a generous pension, which lasted as long as the giver lived. In after years, Madame Paradisi, under the care of her mother, made the tour of Europe, giving public concerts here and there. At these she often melted the audience

to sympathetic tears by her feeling utterance of a sad song upon her blindness, composed for her by a brother in affliction, Pfeffel, the blind poet, and set to music by her musical instructor Kozluch, a composer of note in those days. Of his compositions Madame Paradisi held in her memory more than sixty, note by note, many of them being of the most intricate character. Besides her extraordinary talents in this her special pursuit, she possessed many of the most remarkable of those powers in which it has already been shown the highly gifted blind are found to excel. So exquisite was the sensibility of her touch, that with her fingers she could determine the colour of surfaces*, the genuineness of coin, and the delineations on playing cards. She was also a geographer and a skilful arithmetician. Her sweet and happy disposition, her brilliant intellect, her ready wit and humour, made her a centre of attraction in every circle. Capable of sustaining her sorrows in solitude, it was not even to be realised from her demeanour in society, that she was in aught debarred from using any of the faculties of her kind. The tide of sympathy which so largely

* This detection of colour needs verifying. — Ed.

sustained her in affliction, and so mercifully compensated for its privations, gave rise to a reflex action, the development of a bright and pure light, illuminating, not only her own path, but shedding its bright radiance on that of all around her.

Such are a few of the instances in which those who have never seen the light, have by their genius overcome the barrier which blindness has set in their path. Further illustrations might have been given, but enough has been said to convince the reader that the popular impression advanced in the beginning of this section has no foundation in fact; that the born blind child is not a blighted plant, but that its mind, endued with all the capabilities of the seeing, may, by careful and diligent culture, be brought to bear the richest fruit.

CHAP. II.

THE EMBOSSED SYSTEMS.

ONE of the greatest blessings ever conferred upon the Blind, is the embossed system of reading. No one has felt this more truly, none with more heartfelt thankfulness, than the writer. In the early days of his blindness, it did much to soothe and calm the troubled spirit under the calamity which had befallen him; particularly in those moments when the mind having been engrossed in the subject of the hour, had awakened as if afresh to the bitterness of its affliction.

One such occasion I well remember. It was in the first dawn of my blindness, on one of those lovely days of early spring we all know so well, as good Herbert hath it, "a day let down from Heaven." An invalid, I got out in my chair on the Downs, and as I was drawn along I heard the song of the birds in the neighbouring copse, and the wind rustling through the branches, and the humming of the swift-winged insect as it flew past

me. Everything reminded me of the beauties of the opening spring, and I found myself unconsciously repeating the lines of the good Dr. Watts:—

> "Nature with open volume stands
> To spread her Maker's praise abroad,
> And every labour of his hands
> Shows something worthy of a God."

But the exhilaration of the moment passed away: I felt *that* volume to me was closed, and closed for ever! and closed, too, in the midst of the loving and ardent investigation of the minutest and most wonderful of God's works. I trust no murmur escaped that I could no longer see, but the sad and solemn fact of blindness oppressed me for a moment with intense power. Quickly, however, relief came in the remembrance that though this volume was closed, one, much more precious, was still open to me; and I said, "In God's word will I rejoice; in the Lord's word will I comfort me."

> "Oh, book, infinite sweetness! let my heart
> Suck every letter, and a honey gain;
> Precious for any grief, in any part,
> To clear the breast, to mollify all pain."

This volume too had, however, been a sealed book for a time, and deeply did I feel at that

moment the obligations which I owed to Moon's system of embossed reading. I felt it was, indeed, a light to the blind man's dark path, and could cheer his gloomiest and saddest hours; for, it enabled him to go for himself to the fountain of living water.

Deeply grateful for this privilege, I would that every fellow-sufferer should enjoy it; and, to promote this object the following pages have been written. In perusing them the reader will bear in mind that this is the experience of a blind man; that the enquiry grew out of a pressing necessity; that it was entered upon with a mind free from bias or predilection; by one, too, whose blindness, I cannot but think, fitted him the more for the enquiry, connected as it was with a previous professional life devoted to the consideration of subjects of a kindred nature. It is proposed, first, to speak of the advantages of an embossed system; then notice the limited success which has hitherto attended the systems now in use; and next to show the causes of their failure, with a few words as to remedy.

The importance of these systems to the blind is very great; though, comparatively, little has been hitherto effected by the embossed systems:

there is nothing like an educational series in any one of them. Beyond learning to read, all knowledge obtained has been chiefly conveyed by word of mouth; no doubt, a complete series of books would be expensive, but if one type were universally adopted, that expense would be greatly diminished, and insignificant when compared with the advantages gained.

*If in Moon's system, all would be able to read them.** An objection, however, would be started, that *to write* in this type would not be understood by the sighted. I would teach the adolescent the common writing character for this purpose. Their small and sensitive fingers, with a large brass type to learn from, would, without much difficulty, attain this accomplishment: the adult would already possess it, as I do at this moment while writing these pages.

If books are required for the comfort and happiness of the sighted, how much more for the blind! Deprived of the highest bodily privilege,

* This is a mere idle assertion, which has to be proved. The testimony of a very large number of blind children goes the opposite way. The one fact of having to teach two systems, one for reading and one for writing, is sufficient to condemn such a plan. The ROMAN LETTER is learned as easily as Moon's system. — ED.

and the purest physical pleasure which man has derived from his Creator, the mind is no longer every moment refreshed, and the eye gladdened by the animated scene around; it is thrown back upon its own thoughts, feeds upon itself; and however highly cultivated, rich, and varied its stores, it quickly becomes wearied and exhausted by this continued thinking.

The wear and tear of this constant thought would in time destroy the strongest mind. Occupation from without becomes absolutely necessary to sustain health, and hence the value of the independent and never-failing resource of books.

To the blind invalid, embossed books are invaluable. How often in the wakeful hours of night has he found relief and comfort in his book! Needing no light of candle, but passing his finger over line after line, the mind has become refreshed and the heart comforted, and he has dropped into quiet and refreshing slumber. A valuable and safe opiate this!

In the various forms of partial blindness, embossed reading may be a source of much comfort, and a remedial agent of much value. Many persons have sufficient sight for the ordinary

purposes of life, but are unable to read, and continue in this state for years. Others there are who, suffering from an exhausted condition of the nervous system, can still see to read, though they ought not; such reading by the eye aggravating and accelerating blindness. Embossed reading would tend to preserve what little was left. There is a natural unwillingness in such persons to learn this mode of reading; it is a tacit acknowledgment of blindness being inevitable. It is of immense importance to the partially blind to preserve what little sight they have left, and any means that contribute to this end are invaluable; a fact frequently acknowledged when too late.

But above all, as a means of reading the word of God, is the embossed system the greatest blessing. Without it the born blind would never be able to read it at all, while the sighted becoming blind, would from that moment be deprived of the sacred privilege for ever. The calamity of blindness is unspeakably great, and the only true source of consolation in moments of sadness is communion with God in His word. To be enabled to do this directly, and not through the medium of another voice, can alone satisfy

the sad heart of the child of darkness. Ask the recently blind what tended most of all in the early days of his darkness to take away the sting; he will tell you, the embossed Bible. Ask the poor blind cottager what it is which lights up the darkness of his lonely dwelling, so that there is no more night; he will point to his embossed Bible. Go to the sick chamber of the blind invalid, who for days, months, and years has been confined there, and ask him what has been his support and comfort, and relieved his otherwise weary days and long nights; he will tell you, the embossed Bible.

Tedious as this mode of reading may appear, it has its advantages. The eye of the sighted quickly passes over passage after passage, but the finger of the blind has to feel out every letter; and it may be, that frequently deeper views of the mind of its author are thus obtained. Such are some of the advantages which the embossed systems offer to the blind. Let us see how far they have been realised in their past history.

SECT. I. — *The Limited Success which has hitherto attended the systems in use.*

These systems have, as yet, effected comparatively little.* After a most careful and, naturally, a most interesting investigation of the subject, the reason appears very plain. They do not meet the wants of the blind, they can be learnt only by the limited few. These remarks, it will be observed, however, do not apply to Moon's system, in which it is believed we happily possess all that is wanted by the blind: it is easily taught, can be learned by all, and ever after read by them. Of the value of this system I cannot speak too strongly. We owe its existence to the defects of the other systems, and the success which has hitherto attended its pro-

* The noble art of printing in relief was invented by Valentine Haüy, at the latter end of the eighteenth century. He commenced teaching his first pupils in 1784, from which date various modifications of his principle have been brought out. In this country those in general use have been four in number: Frere's, Lucas's, Alston's (or the Roman letter), and Moon's. Now it has been a matter of most painful surprise to the writer, that *out of the* 27,000 *blind persons in Great Britain, not more than* 2000 *can read,* although the three former of these systems have been in use a quarter of a century, more or less.

gress, strikingly proves how admirably it is adapted for its purpose; but let the following facts speak for themselves.

Sect. II.—*The Causes of Failure.*

In 1851, after the wear and tear of twenty-five years of an active professional life, my nervous system became exhausted, and by the over-use of the microscope blindness threatened. In 1853 blindness became complete, with the exception of a faint glimmer of light in my left eye, which scarcely enables me to distinguish light from darkness. I now naturally sought means to relieve the solitary sadness of my new position. I was most anxious again to be able to read. I knew but little of the embossed systems, and investigated them with great interest.

One friend brought me Frere's system, another Lucas's, and a third two volumes in the Roman letter. I diligently tried them all; but completely failed, and thought I must give up the attempt in despair, when Mr. Moon was introduced to me: I gained a perfect knowledge of the letters of his alphabet in this the only lesson which I ever received, and was soon able to read the 14th

chapter of John. From that day to this I have sought out the blind wherever I could find them.

Last summer twelvemonth, at Tonbridge Wells, amongst other cases of blindness, I met with a poor man who, some years previously, had been deprived of sight by an accident while working on the estate of the Earl of Abergavenny. He was taught Moon's system, and readily acquired it; but was too poor to purchase books. Some time after, a young lady from Scotland called upon him, and on her return home sent him the Gospel of St. John; "But, sir," he said, "though I have tried hard for two years, I have never been able to make out a single word." I found it was in the Roman letter. He was furnished with a copy of the Psalms in Moon's type, for which he was most thankful. I next visited a friend in Surrey; the ladies of our party riding out one morning saw an old man, in the distance, guiding himself by trailing the end of his stick along the hedge. In breaking a stone, a portion of the flint had entered his right eye, destroyed the sight, and the loss of the other quickly followed.

He had not only read, but enjoyed and valued

his Bible, previous to this terrible accident, and was rejoiced when told it was possible for him to read it again. I called upon him the next morning, gave him his first lesson, and found him an apt scholar although in his 71st year. In a week's time he acquired a thorough knowledge of the alphabet, and upon my expressing my surprise said, "Ah! sir, since my blindness I have always gone to bed early and awoke about midnight, restless and uncomfortable, and have not known what to do with myself; but this last week I have sat up in my bed, put on my coat, taken my letters, and have been quite happy." On examining him I found he understood his alphabet perfectly, and spelt out his own name, a most difficult thing to do, and read correctly the text at the bottom of the page:—"Open thou mine eyes, that I may behold wondrous things out of thy law." I gave him the 14th chapter of John, and a friend took charge of his case. He was subsequently furnished with other portions of the Bible, and he now need no longer sit solitary in darkness in his lonely dwelling, his mind feeding upon itself; but is able to read the word of life, and with increasing delight. Other cases occurred in this journey, but it is unnecessary to refer to them.

On my return to Brighton, I had the pleasure of being introduced to a blind gentleman who had been attempting to learn the Roman character and also Lucas's, but had given them both up in despair. I explained to him Moon's system in the brass letters, and without further help he most easily learnt to read.

The insurmountable difficulties which my friend met with in the Roman and Lucas's system, could not possibly have arisen from a deficiency in the sense of touch, since he possesses it in a remarkable degree. I have a writing machine admirably combined, and made by him in his leisure hours; the manufacture of which, must have demanded the greatest delicacy of touch and manipulation. I may add too, that go with him into his garden in the summer, and he will tell you, by touch, the name of every plant and flower, and whether in health or drooping. Subsequently to this, upon going into apartments in one of the squares of this town, I found another blind gentleman, residing in the same house. Ascertaining that he could not read, we met the next morning. He informed me that he became blind at nineteen years of age, was then forty, that his attention had been particularly directed to the embossed sys-

tems, especially to that of the Roman letter. He assured me, however, that he had not been able to acquire it, although his touch was so sensitive and perfect, that he was able to distinguish the order and family of the minutest shell, having been, until very lately, a large collector.

I explained to him Moon's system, with the brass letters; and he passed his finger over the printed characters. I then gave him the 14th chapter of St. John, and requested five or ten minutes' attention, to be given to this subject, two or three times a day. On the morning of the third day, after this, as he was leaving Brighton, he came into my room, told me that he had mastered the alphabet with the most perfect ease and celerity, and felt that he should have no difficulty in being able quickly to read; but at the same time observed, that his knowledge of the Bible, and the privilege of being read to whenever he desired, made him less anxious to possess this power himself. I referred to the blessedness of being able to read the word of God for myself, and said that there were moments of gloom and sadness which every blind person must experience, and which the reading of God's word, with none but God, could only relieve. This case strikingly shows

how two or three days will accomplish that for Moon's system, which nineteen years had completely failed to do for others.*

I will detail only one other case:

A friend informed me of the following lamentable accident: a young man twenty-five years of age, the foreman of some paper mills in Kent, in order to loosen the stopper of a quart bottle of fluid ammonia, immersed it in boiling water; the bottle burst, its contents flew into his face and eyes, and in a moment he was blind. On his recovery and return to Northumberland, I wrote to him, and sent the materials for learning to read.

I received a reply in the course of a few weeks, in which he said: "Your very interesting letter with the reading materials duly came to hand. I had dull, desponding, indolent feelings, with very dark prospects for this life; but when the means of improvement, comfort, and usefulness were furnished, they tended much to relieve my mind. I can now read very well, and had no difficulty in learning." He added, that he ven-

* In weighing the value of such evidence as this in favour of Moon's system, it must not be forgotten that more than 600 blind children have passed through the Blind School, nine-tenths of whom learned to read the Roman letter with ease. — Ed.

tured to keep the brass letters, stating: "I have the prospect of doing the same kindness to another which you have done to me."

In what then consist the difficulties of the systems of Lucas, Frere and Alston, or the Roman letter? Why is it that the majority of the blind cannot learn them, and the remainder only by patient, persevering, and diligent effort?*

These are a few of the cases only which I met with during this period. It will be remarked that whilst in all Moon's system was learnt with the most perfect ease, three of the pupils who had tried other systems had found their difficulties insurmountable.

The facts which these cases bring out might be largely confirmed by evidence from other sources. The following are cited from an interesting little book, "Light for the Blind:"—

"A blind schoolmistress, who knew the Phonetic system only, had a small book of Moon's

* The majority of the blind DO read by the Roman letter; and it is to be hoped that on every ground they will continue to do so. The adoption of any arbitrary system will do much to cut them off still more from communion with their fellow-men, and render their isolation more complete. — ED.

sent her by a friend, and in the course of the next day she had read it through. A man in Cornwall, who has some of Lucas's books, continues to read them; but finding them distressing to his head, he turns to Moon's for relief, which he reads much more fluently, and finds (he says) 'fifty times easier!' He now takes them from cottage to cottage, reading to his poor neighbours, and teaching those who are blind to read. Some of these, after a short period of instruction, were found to read well, when lately assembled by the Clergyman for Examination in the National School. One of them had tried to learn on Lucas's plan, but had given away his books, saying they were of no use to him. The same man nearly learnt Moon's alphabet in half-an-hour, and is now reading St. John's Gospel. Another of his scholars, a very poor old man, was overjoyed on receiving a copy of St. John's Gospel, and said he would 'rather have it than a new suit of clothes.'

"A clergyman in Sussex thus writes concerning one of his parishioners, aged thirty, and blind from four years of age: — 'Ten years ago,' he says, 'on coming to this parish, I found this young man not only ignorant of his letters, but

utterly incredulous of the possibility of learning to read. By dint of perseverance, I taught him the alphabet in the large Roman characters, and to spell and read a kind of Primer for the blind. But here we were stopped, because, from the *hardness* (he being a field-labourer, though blind) and the *size* of his fingers, he could not distinguish the letters, or the spaces between them, all the books for the blind being printed in small type. His efforts to overcome this difficulty, and his disappointment, caused so much irritation in a system constitutionally nervous, that I was obliged to desist, and he remained stationary for years. Last autumn I took him to the Blind School at Brighton. In two or three lessons he learned all the characters of Moon's alphabet, and could read part of a chapter of the Gospel of St. John. He had little difficulty in forgetting the form of the letters as originally taught him, and adopting Moon's; and now, the Holy Bible, so far as is yet published by Moon, is no longer a sealed book to him. I most sincerely hope that, ere long, the London and all the Blind Schools will adopt Moon's alphabet.'

"Several blind gentlemen have learnt to read by Moon's system, who had tried others in vain.

One of them, sixty-three years of age, who describes himself as quite dark in the blaze of the noon-day sun, after trying every alphabet for the blind, had given up all hope of reading; but, in two lessons, he says that he comprehended Moon's, and in a very short time could read with facility three of his books which were printed with lines wide apart. Another, after trying every system, had strongly felt the need of one which should unite a full orthography with a simple character, and was so delighted to find all his wishes realised in Moon's, that he gave liberally of his substance to carry it out. A third is a young man of superior education, but out of health. He persevered for a year or two in the attempt to learn Lucas's system, but it distressed his nerves so excessively, that he at last gave it up and turned to Moon's, which he soon read with ease. A clergyman, who had tried in vain to read by the Phonetic system, also learned to read Moon's books with ease, and found them a great assistance in his ministerial labours."

The causes of failure will be found partly in the blind themselves, but chiefly in the difficulties which these systems present. The capabilities of the blind to learn these systems are unequal;

partly determined by the age at which the blindness occurs, and the health of the individual. The *born blind* and *those that become so before their twentieth year*, when the growth of their body ceases, will obtain this sense of touch in the highest degree, not simply from its more active exercise, but because there will be an actually larger amount of nervous fibre deposited in the organ itself.

Blindness, however, taking place at adult age, there will be no such increase in the structure of the organ, though from its more active use the keenness of its sensibility will be heightened in some cases to a great degree. In the majority, however, the blindness having been the consequence of broken health and an exhausted nervous system, the sense of touch, far from its sensibility being increased, will demand a cautious expenditure of its power. The difference in capability of touch between the adolescent and adult blind, is thus seen to be very great, and when it is remembered how largely the latter preponderate over the former (eighty per cent.*), the want of success of these systems cannot excite surprise.

* Query? On the whole, I should be inclined to fix the percentage of blind adults at a far lower rate; perhaps 30 or 40. —Ed.

This disparity of numbers, too, must be expected to increase. The amount of born blind (remarkably few) will always be much the same, but the chief sources of youthful blindness of former days, viz., purulent ophthalmia in infancy, and small-pox in childhood, which blinded their thousands, with the advance of science have nearly passed away, while, on the other hand, the sources of adult blindness have largely increased; accidents in mines, manufactories, trades directly injurious to the sight, and more than all, the intense ardour with which the business of life is conducted in these days, and the consequent wear and tear of the constitution, particularly the nervous system, are prolific sources of this calamity.

The difficulties which the systems themselves present are those connected with touch, thought, and memory.

Frere and Lucas tax thought and memory. Their symbols are clear to the touch, but being abbreviated or shorthand systems, and Frere's also phonetic or combinations of elementary sounds, they are elaborate, complicated, and full of difficulty. For instance, some of the symbols of Lucas have as many as four meanings; the one in use being determined by the context. This

multitude of contractions, and uncertain and doubtful meanings of some of them tend greatly to perplex and harass the scholar, and are therefore most unfit for the adult blind, whose nervous system should be rather soothed than unnecessarily irritated. The efforts of the adolescent, aided by the patient instructions of his teacher, in time conquer all these difficulties, however great; but if we are to have a system which all can master, we must not select these.

The difficulties of Alston's system, or the Roman letter, are entirely confined to the touch. They are easily mastered by the diligent application of the adolescent, but insurmountable to the majority of the adult blind. Every letter presents to the finger a number of lines straight or curved, or both united. To feel every line out is a difficulty, except to the keen practised touch of the adolescent, and even by him, I suspect, the letter is recognised as the finger passes over it by some portion, rather than by the whole.*

* Whether each letter is recognised by some one portion, rather than by the whole, is a matter of no possible importance. The grand thing is for the blind person to learn to read. If he can detect a letter by a single touch — as it were by a single, rapid glance — so much the better for him. — Ed.

This system would be the best if all could attain it; but the experience of an unprejudiced well-wisher of the blind tends the other way. If this system alone were to be adopted, many of the blind would never be able to read at all. I have known an aged blind man, who for twenty years had been trying to read his Bible by this system, go down to the grave with his ardent wishes ungratified. A large debt of gratitude, however, is due to their philanthropic and skilful inventors, and to those also who have so generously and untiringly striven to spread abroad their benefits.

Sect. III. *The Remedy.*

The adoption of one embossed system for the use of the Blind has been much discussed, and its importance is now generally admitted. It would concentrate the efforts of their well-wishers, and be productive of large and beneficial results. It would tend to the more perfect typographical execution of the system selected, and render its use, already easy, more easy still to the reader. It would greatly increase the demand for books,

and thus diminish their cost; and it would largely increase the number and variety of books published, which up to the present time is very limited. But difficulties have arisen in the selection of the system. The advocates of each love their own child best, and have failed to take a candid and comprehensive view of the question — otherwise it must have occurred to them that neither committees, nor preceptors of asylums, nor indeed any sighted persons, are competent judges of this matter, but the blind themselves. Take half a dozen blind persons who have never learnt to read, give them the ablest teachers, let this ordeal decide the question, and I have no doubt about the result. Or if you will, go into the cottages of the blind poor, and test it for yourself. The facts already given ought to have great weight with every candid and unprejudiced mind, and I hope that the day is not far distant when conviction will be followed by benevolent and active exertion.

Moon's system consists of the Roman letter simplified, with the substitution of the simplest symbol, where this could not be done. Thus instead of the many lines of the Roman alphabet, each letter is reduced to a single line, either

straight, bent at an acute or right angle, or crescent; which with the addition of the common O and a dot for H constitute the twenty-six letters of the alphabet. Formed by a single continuous line, every portion of the letter is instantly felt. The letters thus easily felt are as quickly learnt by the scholar, and if he has a previous acquaintance with the Roman letter are more readily learnt, from the resemblance to their original. It gives a great advantage also to the teacher, who with a copy sheet of the alphabet, may in one half hour qualify himself for an instructor. With the educated blind one lesson often suffices.

The simplicity of the structure of the letters of this alphabet, and the clear, sharp, and well defined manner in which they are embossed, enable the pupil not only to read it in his early years, but in after life, when the sensitiveness of the touch has been deadened by long continued manual labour. It has been mentioned as an objection to the system, that the characters are arbitrary, and thus obstacles are thrown in the way of the blind; but if the system is only fairly examined, almost every letter will be found as near an approximation to the Roman letter as it was possible for the author to make it.

A full orthography has been objected to rather than an abbreviated system, as exhausting the finger as well as time. The practised scholar will read as readily by one as the other; as the admirable reading of the blind scholars of the Brighton School sufficiently proves. After careful practise they recognise the combination of letters in each word without forming a separate idea of each letter, and read line after line by passing the finger over each with considerable rapidity. It is further objected to Moon's system, that its books are too costly and bulky.* This is no complaint of the blind. From two of the largest institutions of this country where other systems are employed, their pupils are seeking these books — in one, saving their weekly pittance and sending their order to Moon's depôt; and in the other, upon leaving the institution requesting that the usual donation of embossed books given on such an occasion, might be in Moon's type; a request most generously granted.

I am informed that the cost of getting up these books is about the same as the Roman letter, though in size they greatly exceed them.

* As regards cost, the fact remains indisputable. Vide "Edinburgh Review," January, 1854. — Ed.

I entreat the serious consideration of all who are interested in this important subject to what I have now said. He, who of infinite compassion and tender mercy when on earth restored the sight of the blind, remembers them still. "Truly the light is sweet, and a pleasant thing it is for the eyes to behold the sun;" that light you cannot bestow but in forwarding the object which the writer has so much at heart. You may be the means of bestowing upon them the light of life, peace, and joy. I will only refer to one other point. Not only must we have a system that all can read, but also a machinery to teach it. The noble establishments of this country do not contain more than a twenty-seventh part of the objects of our solicitude. How is the aged, the unclad, or the poor blind cottager, to leave his wife and children, looking to him for support, to spend four or five years, it may be, in a distant part of the country? The desideratum so much needed in addition to asylums, is the establishment of a society to provide an agency in the various parts of England to seek out the blind, to instruct them, and provide them with portions of the word of God. I hope the day is not far distant when this earnest desire of a blind man

will be realised; and it is a matter of no small congratulation to me, and a happy augury of the future, that a society is now established to commence this good work. Since September last, a blind teacher has been employed in the metropolis and its environs, who has, up to the present time, sought out and taught fifty blind persons to read.

In the meanwhile, we may individually do something to forward this object. Every one in his own locality may, by seeking out the blind man, teach him to read, and give him a portion of the word of God.

Additional Reasons why the Embossed Systems have hitherto had so little success.

The originators have planned them for the born blind, and have not had in view, at the same time, the condition and necessities of a much larger class, viz. those who have become blind in middle or more advanced life.

The mental and physical capacities of the born blind are much less affected by this deprivation than is generally supposed. Give them the educational advantages which others enjoy, and

their physical and mental development will equal that of those having sight. The attributes of the lost sense will be supplied by the increased tone and cultivation of those which are left. Such a child will, with comparative ease, surmount the difficulties of the most complicated and minute of the embossed systems, by his exquisite sensibility of touch, and healthy mental power.

And thus it is found, that the majority of those who have attained facility in reading these systems have been born blind, or having afterwards become so, are in the enjoyment of vigorous bodily and mental health; with one exception, the uneducated, amongst this class. The census of 1851, however, proves how small a proportion the born blind bear to the whole number; and the experience of a long professional life not only confirms this, but shows that the majority of the adult blind are more or less invalided.

It will be found, in most cases of blindness taking place after birth, with the exception of those which arise from accidental causes, in by far the larger number, that the nervous system has been more or less damaged. In the diseases of childhood, as small-pox followed by blindness,

this is a frequent sequence. Through life there will exist a nervous system easily excited and easily exhausted. The same remark applies to blindness occurring in youth, generally the result of some acute disease of the brain, or a premature exhausted state of the nervous system. In middle and more advanced life, this remark is more strongly manifested than ever; the larger class of causes then arising out of a depressed and failing state of the nervous system, as in Amaurosis, Cataract, &c.

In these — and they form a large proportion of the adult blind — the nervous systems of brain and spinal cord will be found more or less damaged, manifested by an irritability of temper, and a nervous system quickly exhausted by slight mental effort. Memory, which in the healthy blind becomes strengthened by exercise, will bear but little use, and when it is to be employed through another sense, that of touch, a demand is made upon the nervous system which it will ill bear. Such individuals quickly become irritated, exhausted, and by repeated attempts, the mental and physical systems become positively unfitted to learn any embossed system which taxes their memory or touch. In such cases, too, there will

frequently exist more or less numbness of the extremities, positively diminishing the sensibility of the finger, and rendering it unable to feel any embossed letter but the simplest. Again, the poor and uneducated adult blind will be found to form no small portion of this class, to whom the embossed systems to which we now refer present insurmountable difficulties. Go into their cottages and attempt to teach them, and you will quickly find that it is utterly useless; or if any among them should have learnt these systems in their early youth, they gradually lose the power of reading, the exquisite sensibility of their touch being lost from the nature of their employments, chiefly basket, mat, and rope-making; which produces more or less thickening of the skin at the extremities of the fingers. It must be added as another reason for the limited diffusion of embossed reading, that no machinery has hitherto existed sufficient for the purpose. It has been limited to the asylums, which indeed have been established rather to enable the blind to provide for their physical, than their mental wants. These asylums receive in the course of years but a small proportion of the blind, and even were they capable of taking in twice their

number, this would not meet the difficulty. The poor blind man or woman cannot leave his or her home, where perchance a large family is dependent on them for support*; the means of instruction must be taken to them, and if not to their cottage, to the school-house of the village or town where they reside. Most of these systems, too, require considerable time and pains-taking on the part of the *teacher* to learn, a labour which few will voluntarily undertake from the mere motive of doing good.† Again, union is strength, and one of the greatest obstacles to the blind being sought out and taught to read, has undoubtedly risen from the diversity of systems in use, and the antagonising claims of their advocates. All have good for their object, but each loving his own child best, the mind becomes strongly prejudiced in favour of its own, and is thus completely blinded to any improvements suggested, however manifestly so, by others.

* But it must also not be forgotten, that the schools now established in various parts of England are gradually lessening the whole number of uneducated blind persons. The next generation of adult uneducated blind will be far less; and as the number of schools increase, and do their work well, the adult uneducated will gradually cease.—Ed.

† The teacher of the Roman letter will have nothing to learn. —Ed.

CHAP. III.

INFLUENCE OF BLINDNESS ON MECHANICAL EMPLOYMENTS.

THE influence of blindness upon the man who follows a mechanical employment is as decided and as marked as in the case of those whose pursuits are purely of an intellectual kind. If the mental and physical training of the blind child has only been wisely cared for, whatever its after pursuits, it will carry into them an individuality, energy, and concentration of purpose at all times characteristic of the blind. Neglect him, leave him to his isolation and darkness, and both mind and body stagnate. The one becomes imbecile, the other withered and deformed.*

Succour and help him in his infirmity; only once convince him that he has a work to do and power to do it; that He who made the day made the night also, for him, as for others, to labour and to rest,—only once convince him of this, and

* Johns's "Light and Darkness," p. 157.

"whatsoever his hand findeth to do, he will do it with all his might."

Many have neither taste nor talent for mathematical and speculative sciences, few are gifted with the inspiration for poetry or music; but all display, when roused into action, that indomitable energy and perseverance which overcome every obstacle. In none is this peculiar feature more conspicuous than in those who follow the mechanical arts. The predilection which has been evinced for these pursuits by many, as a mere object of amusement, seems readily accounted for, when we think how exceedingly limited are their sources of occupation. No labour is more laborious, never is perseverance so tried, as when, sitting with hands before you in ever-during dark, doing nothing.

A detail of the ordinary mechanical employments of the blind has already been given. The more unusual ones, the arts of turning and clock-making, have also been referred to; but the sketch would be left incomplete unless mention were made of two or three remarkable instances on record in which the work accomplished was equally difficult.

Notes on the relative Severity of Blindness and Deafness.

"The cheerfulness almost universally incident to persons deprived of sight, leads us to consider Blindness as, on the whole, a less calamity than Deafness. The deaf man is continually exposed to the sight of pleasures, and to society in which he can take no part. He is the guest at a banquet of which he is not permitted to partake; the spectator at a theatre where he cannot comprehend a syllable. If the blind man is excluded from some sources of enjoyment equally important, he has at least the advantage of not fully comprehending what he has lost.* It may be added, that perhaps the greatest privation consequent on blindness is the inability to read, as that on deafness is the loss of the pleasures of society. Now the eyes of another may in a great degree supply this defect of the blind man, while no art can afford a corresponding substitute to the deaf for the privations to which he is doomed in social intercourse. He cannot hear with the ears of another. As however it is undeniable

* This refers to the born blind.

that blindness makes one more dependent than deafness, we may be content with the conclusion that the former would be the most eligible for the rich, and the latter for the poor. Our remarks must apply to those only who are wholly destitute of sight and hearing. A person afflicted only with a partial derangement or infirmity of vision, is placed in the same tantalising predicament as the deaf; and is consequently found to be usually of a far more impatient and irritable temperament, and consequently less happy than the totally blind. With all this we doubt whether there be one of our readers, even should he assent to the general truth of our remarks, who would not infinitely prefer to incur partial to total blindness, and deafness to either. Such is the prejudice in favour of eyes!"*

"It is a curious speculation, why so much more compassion and sympathy are shown to the blind, than to any other class of sufferers from personal imperfection or infirmity. Their case is sad enough, no doubt, and their privations are great and constant. But their disadvantages are not to be compared with those of persons of deficient intellect, as with those of the deaf, while their

* "Prescott's Essays," p. 39.

personal suffering is much less than that of the deformed or maimed. Those who suppose blindness to be a worse misfortune than deafness, are thinking, we suspect, of total blindness in comparison with partial deafness; whereas we must have both total or both partial in order to a true comparison. The full power of communication with other minds, enjoyed by the blind, gives them all that is necessary for the development of every essential faculty; while the deaf and dumb must remain radically deficient in mental power and training all their lives. The blind obtain by far the readiest and most genial sympathy.

"The commonest remark in the world is, 'that the blind are cheerful and agreeable in company, while the deaf are morose and unhappy.' Yet it does not seem to occur to observers that, to make the comparison complete, they should follow the two into solitude. If they could peep through the keyhole, they would see the counterpart of the contrast; the deaf busy, unembarrassed, and happy; and the blind, not necessarily idle or unhappy, but without the animation inspired by social pleasures, which are the delight of their lives. Now, this superior sympathy in the case of the blind must be natural, or it would not

be so general. It is no doubt owing to the smaller essential differences between the blind and the generality of persons, together with the very evident and appreciable nature of their privations." *

"The ear is, in some respects, a more human organ than the eye, for it is the counterpart of the human voice; and it is a sorer affliction to be cut off from listening to the tongues of our fellow-men, than it is to be blinded to the sights on which they gaze." †

Blindness illustrated in the Lives of Famous Men.

James Mitchell was born deaf and blind. It was a singular fact that he seemed to be attracted by bright and dazzling colours, and he would try to gratify his fondness for light in strange ways. He would retire to any outhouse, or to any room within his reach, shut the windows and doors, and remain there for some considerable time with his eyes fixed upon some hole or chink which admitted the sun's rays, eagerly catching them. He seemed to have a great love for sunshine,

* "Household Words," p. 422, 1854.

† See Wilson, p. 33.

and got a candle all to himself in a dark corner of a room. Moreover, his senses of smell and taste were uncommonly acute, and he obtained a great amount and variety of knowledge by means of them. The vast conception of communication between people and things at a distance was conveyed to him at once by smell (if not by such light as he was sensible of); and there is nothing so difficult to convey to those who have not his comparative advantages. He knew his family and friends some way off by his sense of smell; could tell whether they came home with wet feet or dry, and, no doubt, whether they had been gathering sweet herbs in the garden, or dressing the horse in the stable yard. His sister, who watched him with tender care, obtained considerable influence over him. By various modifications of touch, she intimated to him her satisfaction or displeasure at his conduct. Touching his hand with her hand was her principal method. This she did in various ways, and with various degrees of force, and he seemed readily to understand the intimations which she thus conveyed. When she would signify her highest approbation, she patted him much and cordially on the head,

back, or hand. This expression more sparingly used implied simple assent; and she had only to refuse him these marks of her approbation entirely, and repel him gently, to convey to him in the most effectual manner the notice of her displeasure. In this manner she contrived a language of touch, which was not only the means of communication, but even the instrument of moral discipline. But, failing at this point, she had recourse to a language of action representing those ideas which none of the simple natural signs cognisable by the sense of touch could convey. When his mother was from home, his sister allayed his anxiety for her return by laying his head gently down upon a pillow, once for each night that his mother was to be absent, implying that he would sleep so many times before she returned. It was once necessary to inform him that he must wait two days for a suit of new clothes, and this also was effectually done by shutting his eyes and bending down his head twice. In the mode of communicating his ideas to others there was a very remarkable peculiarity. When his eye was pressed by Dr. Gordon, he stretched out his arm as if to intimate that the pressure reminded him of the

operation performed at the distant place which he had visited. When he wished for food, he would approach his mother or sister, touch them in an expressive manner, carry his hand to his mouth, and point to the apartment or cupboard where eatables were usually kept. When he wanted to go to bed, he used to incline his head sideways, as if to lay it on a pillow. He indicated riding on horseback by raising his foot and bringing the fingers of each hand together under the sole, in imitation of a stirrup. He would describe a shoemaker by imitating with his arms the motions used by a shoemaker in pulling out the thread; while a tailor was symbolised by the motions made in sewing. But although no information could be conveyed to him without touching some part of his body, he did not attempt in any of these cases to touch that of others. It cannot, however, be supposed that he addressed these signs to their sight; but the fact appears to show that he was conscious of their being endowed with some means of interpreting signs, without contact, by some incomprehensible faculty which nature had refused to himself.

It is unnecessary to pursue the details of this

case. It is painful to think how little was done to redeem the mind from its bondage; especially when we remember that one of its inlets only was totally closed. We have seen, too, in our own day, as in the cases now to be detailed, how much has been accomplished where only one sense existed. Yet, I think, it must be granted, that in the treatment of the gentle and loving sister, we m y perceive the dawn of that system which has done so much for Edward Meyster and Laura Bridgeman.

In Edward Meyster, the subject of our second illustration, the total absence of each sense was not from birth. He had a deaf and dumb brother, but heard very well himself as an infant, and began to say papa and mamma, when the small-pox deprived him of his hearing, utterly and absolutely, at the age of eleven months. There was fear for his eyes at the same time; but they escaped, and he saw perfectly well till the age of eight — an immense advantage in regard to his future development. It was a cruel accident that deprived him of sight; and we pity its careless author even more than the sufferer. A boy of eleven, Edward's cousin,

playing with his father's loaded gun, aimed it at the door of the room; and at the precise moment when Edward was coming in, discharged the piece, lodging the shot in the poor child's face and eyes. The sufferer pierced his mother's heart by clinging to her for long afterwards, saying, in his language of signs, that it was always night. He wanted to have his cousin killed; and his mother, strangely enough, pacified him by telling him the boy was dead and buried. He wanted to be certain, and she took him to a new-made grave; and such was his ill-trained moral condition, that he stamped upon it with his feeble little foot. Happily, he was soon taken under a wiser care. The time arrived, and before very long, when he loved and consoled his poor cousin, and was always glad to meet him — while informing other people who visited him that he once had two eyes, and now had none; adding, turning pale as he made the signs, that it was very pleasant to be able to see.

At this time, his employment was handling and cutting wood in his father's shop, his father being a carpenter. When his father left business, the lad cut wood for the neighbours. It is sad that the one sense, which was now to

be relied on, should be impaired by his hands being hardened and roughened in this way; and though he was taken into the excellent Blind Asylum at Lausanne (maintained by one beneficent English gentleman) at the age of eighteen, his fingers never acquired the delicacy of touch of the other pupils. There is no evidence that his senses of smell and taste were turned to particular account in his education, but they were not deficient, and James Mitchell's case seems to show that much might have been done by means of them. In his education there were some marked stages, which it is highly interesting and important to notice. His enterprising and benevolent teacher, M. Hirzel, taught him words by means of raised print, beginning, of course, with nouns. He was made to touch a file, and the word file (in French) was given him, now in larger and now in smaller letters, that he might find out that it was the shape of the letters and not the size that was important.

The next word given was saw, and a saw — a thing he was familiar with — was put into his hand. Then came the discovery — during his fourth lesson. His face lighted up. He had found it out! He showed everybody that the

one word meant a saw, and the other a file; and it was some days before he recovered his composure. He now went to his lessons with pleasure, and began to want to know the printed names of things, and to like to pick out from the case the letters composing those he knew. It was a joke of his to put together the letters at random, and ask what they meant. Such were his early lessons. His favourite amusement was at the turning lathe, where he became so expert that he quizzed the new pupils (all blind) for any irregularity in their work of plaiting straw, or whatever it might be.

His indefatigable teacher actually thought he would try to teach him to speak! A person totally deaf and blind! How could it be set about? It was accomplished with infinite trouble, in which the teacher was sustained by the hope of success, and the pupil by the only inducement found strong enough, the promise of cigars. By feeling the teacher's breath, his chest, his throat, his lips, and by having his own mouth put into the proper form for the vowels, by prisms and rings of different sizes, the art of articulation was learned, and it brought on the next great event in Edward's experience. Being taught the easy

name, Arni, of one of the blind pupils, he found that that boy always came to him when he called the name. He found that he could communicate with people without touch by means of speech, and now knew what speech was for. No doubt Arni was wanted very often indeed, till more names were learned, and probably Arni was glad when the others had their turn to be called. This soon happened, for Edward now spoke a good deal, uttering aloud of his own accord the words he learned to read. He went on pretty easily through *The mason makes the wall; the baker makes the bread,* and so forth; and to know that the word wall may mean walls in general; and it was not very difficult to teach him, *to-day, yesterday,* and *to-morrow.* By that time, the third great event was at hand. The weather, from being very cold, had become mild, and Edward's tutor took him out to feel the buds, leaves, and blossoms of plants, and made him observe the warmth of the sunshine, and that there was no snow, and gave him the name Spring, and then taught him, *leaves come out in Spring.* He caught a glimpse of the use of the abstract term, and in great agitation turned the phrase to, in Spring leaves come out. He looked

brighter than ever when he said with his fingers that one word means many things, and he actually capered with joy. It was curious to watch his apprehension of another abstraction. He told a falsehood once; said he had had no wine, when the housekeeper had given him a glass, pleading that she ought to have been questioned and blamed, as she gave him the wine. Great pains was taken to impress him with the meaning and consciousness of the lie; but it was uncertain with what effect. A few days after, the pupils told him at bed-time that there was snow. In the morning he went out to ascertain for himself, being fond of verifying statements. The snow was melted, whereupon he cried out very loud, "Lie! no snow." Thus it was clear enough that he knew his fault, and the value of it. The fourth great event was the clear formation of the religious ideas that were presented to him, and this kind of teaching began as soon as the affair of the lie showed him to be capable of moral training. It is probable that his recollections of light, and all the beauties that it reveals, determined his first superstition. While strongly disposed to superstition in general—venerating the wind, for instance, because it was not tired

after blowing strongly for several days; his particular disposition was to worship the sun. The first religious sentiment that he expressed was, that it does not do to shake one's fist at the sun. He was deeply impressed when told by his companions that the Maker of the sun was like a man, only so wise and powerful as men cannot imagine. As a necessary consequence of this way of teaching him, he was uneasy about what might become of every thing when God was asleep. To remedy this, his teacher took him quietly round the house when the inmates were asleep, and made him softly touch their heads, and told him (by the finger speech) that they were now as if they were dead, being unable to think; whereas God was always thinking. He now very naturally took up the idea that the dead could dream; but he became deeply impressed with the dignity of being himself able to think. When he wanted to play with the pupils whom he found at prayers, and then to know why they joined their hands, he was told that they prayed, and that praying was thinking of God. One night at this period, his guardian hearing his loud uncouth voice went to his room, and found him with folded hands saying aloud,

"I am thinking of God. I am thinking of God!" What pure and exalted joy must at that moment have filled the mind of the benevolent Hirzel at this, the first spontaneous prayer of his poor pupil. Truly indeed, as has been beautifully observed, "this night must have been the sweetest in which ever this lover of his kind laid his head upon his pillow." One consequence of his new notion of the dignity of thought, was his feeling about the deaths of persons of different ages. He felt the corpse of a child of two years old, and asked a woman in the room if she cried for its death; but without waiting for an answer, he added that that was not possible, for the child was too young to be able to think much, or therefore to be worth crying for. These results are surely wonderful for a period of eighteen months. This desolate creature could in that time, speak, read, think, and inquire; he was a subject of moral discipline, and was capable of energetic industry. His works at the turning lathe were excellent, and he had employment enough to fill up his time innocently and cheerfully; a cheering thought and image to all who had heard of him; what must he have been to his guardian, the patient Monsieur Hirzel! His family were proud of

him, even to the deaf and dumb brother, and he lost none of his attachment for them.*

The third case (Laura Bridgeman's) is happily well-known through the writings of Mr. Charles Dickens, who thus graphically describes his interview with her in 1842, then a child: — "I sat down, in another room, before a girl, blind, deaf, and dumb; destitute of smell; and, nearly so, of taste: before a fair young creature with every human faculty, and hope, and power of goodness and affection, inclosed within her delicate frame, and but one outward sense — the sense of touch. There she was, before me; built up, as it were, in a marble cell, impervious to any ray of light, or particle of sound; with her poor white hand peeping through a chink in the wall, beckoning to some good man for help, that an immortal soul might be awakened. Long before I looked upon her, the help had come. Her face was radiant with intelligence and pleasure. Her hair, braided by her own hands, was bound about a head, whose intellectual capacity and development were beautifully expressed in its graceful

* I am indebted for the details of this case to a very interesting article in the "Household Words" for 1854.

outline, and its broad, open brow; her dress, arranged by herself, was a pattern of neatness and simplicity; the work she had knitted lay beside her; her writing-book was on the desk she leaned upon. From the mournful ruin of such bereavement, there had slowly risen up this gentle, tender, guileless, grateful-hearted being. Like other inmates of that house, she had a green ribbon bound round her eyelids. A doll she had dressed lay near upon the ground. I took it up, and saw that she had made a green fillet, such as she wore herself, and fastened it about its mimic eyes. She was seated in a little inclosure, made by school desks and forms, writing her daily journal. But soon finishing this pursuit, she engaged in an animated communication with a teacher who sat beside her. This was a favourite mistress with the poor pupil. If she could see the face of her fair instructress, she would not love her less, I am sure." Her history, prior to this, and up to the present period, is one full of interest. It is given by Dr. Howe, the man who has made her what she is, in the Yearly Reports of the Boston Asylum, Massachusetts. It makes a most touching and beautiful narrative, and I am sorry that I cannot present it entire.

"Laura Bridgeman was born in Hanover, New Hampshire, on the 21st of December, 1829. She is described as having been a very sprightly and pretty infant, with bright, blue eyes. She became, however, delicate, subject to fits, and, it was thought, could not be reared. At two years of age her general health improved, and her mental powers, hitherto stunted in their growth, rapidly developed themselves; she could readily prattle some words, and appears to have displayed a considerable degree of intelligence. But her sky was again overcast; she suddenly sickened; the disease raged with great violence during five weeks. At length it seemed to be subdued, but it was soon perceived that her sight and hearing were for ever destroyed. It was not until four years of age that the poor child's bodily health seemed restored, and she was able to enter upon her apprenticeship of life and the world. But what a situation was hers! the darkness and the silence of the tomb were around her; no mother's smile called forth her answering smile, no father's voice taught her to imitate his sounds; they, brothers and sisters, were but forms of matter which resisted her touch, but which differed not from the furniture

of the house, save in warmth, and in the power of locomotion; and not even in these respects from the dog and the cat."

But the immortal spirit which had been implanted within her could not die, nor be maimed nor mutilated: and though most of its avenues of communication with the world were cut off, it began to manifest itself through the others. As soon as she was able to walk, Laura began to explore the room, and then the house; she became familiar with the form, density, weight, and heat, of every article she could lay her hands on. She followed her mother, felt her hands and arms, and her disposition to imitate led her to repeat everything herself. She even learned to sew a little, and to knit. Her affections, too, began to expand, and to be lavished upon the members of her family with peculiar force.

At this time Dr. Howe heard of the child, and hastened to Hanover to her; he says, "I found her with a well-formed figure, a strongly marked nervous sanguine temperament, a large beautifully shaped head, and the whole system in healthy action. Her parents were easily induced to consent to her coming to Boston, and on the 4th of October, 1837, they brought her to the

institution. For a while she was much bewildered, till she became acquainted with her new locality, and somewhat familiar with the inmates; the attempt was made to give her knowledge of arbitrary signs, by which she could interchange thoughts with others. The first experiments were made by taking the articles in common use, such as knives, forks, spoons, &c., and pasting upon them labels with their names embossed in raised letters. These she felt very carefully, and soon of course distinguished that the crooked lines S P O O N, differed so much from the crooked lines K E Y as the spoon differed from the key in form. Then small detached labels with the same words printed upon them were put into her hands; she soon observed that they were the same as those pasted upon the articles. She showed her perception of this similarity by laying the label, K E Y, upon the key, and the label, S P O O N, upon the spoon. She was encouraged by the natural sign of approbation, — patting on the head.

The same process was then repeated with all the articles she could handle, and she readily learnt to place the right labels upon them. It was evident, however, that the only intellectual

exercise was that of imitation and memory. She recollected that the label, B O O K, was placed upon a book, and she repeated the process, first from imitation, next from memory; with only the motive of love of approbation, but, apparently, without the intellectual perception of any relation between the things. After a while, instead of labels, the individual letters were given to her on detached bits of paper; they were arranged side by side, so as to spell book, key, &c.; then they were mixed up in a heap, and a sign was made (that is, the action was performed by her teacher, she feeling his hand, and imitating the motion) for her to arrange them herself, so as to express the words K E Y and B O O K, which she did. Hitherto the process had been mechanical, and the success about as great as that of teaching a very knowing dog a variety of tricks. The poor child sat in mute amazement, and patiently imitated everything her teacher did; but now her intellect began to work, the truth flashed upon her, and she perceived that there was a way by which she could herself make up a sign of anything that was in her own mind, and show it to another mind; and at once her countenance lighted up with a human expression: it was no longer a

dog or a parrot, it was an immortal spirit eagerly seizing upon a new link of union with other spirits. "I could almost fix upon the moment," says Dr. Howe, "when this truth dawned upon her mind, and spread its light to her countenance; I saw that the great obstacle was overcome, and that henceforward nothing but patient and persevering, but plain and straightforward efforts were to be used."

The result, thus far, is quickly related and easily conceived; but not so was the process: for many weeks of apparently unprofitable labour were passed before it was effected.

When it was said above that a sign was made, it was intended to say, that the action was performed by her teacher, she feeling his hands, and then imitating the motion.

The next step was to procure a set of metal types, with the different letters of the alphabet cast upon their ends; also a board, in which were square holes, into which holes she could set the types; so that the letters on their ends could alone be felt above the surface. Then, on any article being handed to her, for instance, a pencil or a watch, she would select the component letters, and arrange them on her board, and read

them with apparent pleasure. She was exercised for several weeks in this way, until her vocabulary became extensive; and then the important step was taken of teaching her how to represent the different letters by the position of her fingers, instead of the cumbrous apparatus of the board and types. She accomplished this speedily and easily, for her intellect had begun to work in aid of her teacher, and her progress was rapid. This was the period, about three months after she had commenced, that the first report of her case was made, in which it is stated that she had just learned the manual alphabet, as used by the deaf-mutes; and it is a subject of delight and wonder to see how rapidly, correctly, and eagerly, she goes on with her labours. Her teacher gives her a new object — for instance, a pencil; first lets her examine it, and get an idea of its use, then teaches her how to spell it, by making the signs for the letters with her own fingers; the child grasps her hand and feels her fingers, as the different letters are formed; she turns her head a little on one side, like a person listening closely; her lips are apart; she seems scarcely to breathe; and her countenance, at first anxious, gradually changes to a smile as she comprehends

the lesson. She then holds up her tiny fingers, and spells the word in the manual alphabet; next, she takes her types and arranges her letters; and last, to make sure that she is right, she takes the whole of the types composing the word, and places them upon or in contact with the pencil, or whatever the object may be.

During the next two years, her physical and mental developments rapidly advanced. It has been ascertained beyond all doubt, that she cannot see a ray of light, cannot hear the least sound, and never exercises her sense of smell, if she have any. Thus her mind dwells in darkness and stillness, as profound as that of a tomb at midnight. Of beautiful sights, and sweet sounds, and pleasant odours, she has no conception; nevertheless, she seems as happy and playful as a bird or a lamb; and the employment of her intellectual faculties, or the acquirement of a new idea, gives her a vivid pleasure, which is plainly marked in her expressive features. She never seems to repine, but has all the buoyancy and gaiety of childhood. She is fond of fun and frolic, and when playing with the rest of the children, her shrill laugh sounds loudest of the group.

When left alone, she seems very happy if she have her knitting or sewing, and will busy herself for hours; if she have no occupation, she evidently amuses herself by imaginary dialogues, or by recalling past impressions. She counts with her fingers, or spells out the names of things which she has recently learned in the manual alphabet of the deaf-mutes. In this lonely self-communion she seems to reason, reflect, and argue; if she spell a word wrong with the fingers of her right hand, she instantly strikes it with her left, as her teacher does, in sign of disapprobation; if right, then she pats herself upon the head, and looks pleased. She sometimes purposely spells a word wrong with the left hand, looks roguish for a moment, and laughs, and then with the right hand strikes the left, as if to correct it.

But wonderful as is the rapidity with which she writes her thoughts upon the air, still more so is the ease and accuracy with which she reads the words thus written by another; grasping their hands in hers, and following every movement of their fingers, as letter after letter conveys their meaning to her mind.

When Laura is walking through a passage

way, with her hands spread before her, she knows instantly every one she meets, and passes them with a sign of recognition; but if it be a girl of her own age, and especially if it be one of her favourites, there is instantly a bright smile of recognition, and a twining of arms, a grasping of hands, and a swift telegraphing upon the tiny fingers, whose rapid evolutions convey the thoughts and feelings from the outposts of one mind to those of the other. There are questions and answers, exchanges of joy and sorrow; there are kissings and partings, just as between little children with all their senses.

During this year, and six months after she had left home, her mother came to visit her, and the scene of their meeting was an interesting one. The mother stood some time gazing with overflowing eyes upon her unfortunate child, who, all unconscious of her presence, was playing about the room. Presently Laura ran against her, and at once began feeling her hands, examining her dress, and trying to find out if she knew her; but not succeeding in this, she turned away as from a stranger, and the poor woman could not conceal the pang she felt at finding that her beloved child did not know her. She then gave Laura a

string of beads which she used to wear at home, which were recognised by the child at once, who with much joy put them around her neck, and sought me eagerly, to say she understood the string was from her home. The mother now tried to caress her, but poor Laura repelled her, preferring to be with her acquaintances.

Another article from home was now given her, and she began to look much interested; she examined the stranger much closer, and gave me to understand that she came from Hanover; she even endured her caresses, but would leave her with indifference at the slightest signal. The distress of the mother was now painful to behold; for although she had feared that she should not be recognised, the painful reality of being treated with cold indifference by a darling child was too much for woman's nature to bear. After a while, on the mother taking hold of her again, a vague idea seemed to flit across Laura's mind that this could not be a stranger; she therefore felt her hands very eagerly, while her countenance assumed an expression of intense interest; she became very pale, and then suddenly red, hope seemed struggling with doubt and anxiety, and never were contending emotions more strongly

painted upon the human face; at this moment of painful uncertainty, the mother drew her close to her side, and kissed her fondly, when at once the truth flashed upon the child, and all mistrust and anxiety disappeared from her face, as with an expression of exceeding joy she eagerly nestled to the bosom of her parent, and yielded herself to her fond embraces. After this the beads were all unheeded, the playthings which were offered to her were utterly disregarded; her playmates, for whom but a moment before she gladly left the stranger, now vainly strove to pull her from her mother; and though she yielded her usual instantaneous obedience to my signal to follow me, it was evidently with painful reluctance. She clung close to me, as if bewildered and fearful, and when after a moment I took her to her mother, she sprang to her arms, and clung to her with eager joy. The subsequent parting between them showed alike the affection, the intelligence, and the resolution of the child.

Laura accompanied her mother to the door, clinging close to her all the way, until they arrived at the threshold, where she paused and felt around to ascertain who was near her. Perceiving the matron, of whom she is very fond,

she grasped her with one hand, holding on convulsively to her mother with the other, and thus she stood for a moment; then she dropped her mother's hand, put her handkerchief to her eyes, and turning round, clung sobbing to the matron; while her mother departed with emotions as deep as those of her child.

Her social feelings and her affections are very strong, and when she is sitting at work, or at her studies by the side of one of her little friends, she will break off from her task every few moments to hug and kiss them with an earnestness and warmth that is touching to witness.

In her intellectual character it is pleasing to observe an insatiable thirst for knowledge, and a quick perception of the relations of things. In her moral character it is beautiful to behold her continual gladness, her keen enjoyment of existence, her expansive love, her unhesitating confidence, her sympathy with suffering, her conscientiousness, her truthfulness and hopefulness.

Dr. Howe's annual reports go on to speak of her rapid mental progress and improvement from year to year.

A remarkable circumstance noticed in con-

nexion with her dreaming: Not having words, as we have, to carry on the imaginary conversations of these visions of the night, she uses her finger alphabet in her sleep; and it has been ascertained that when her slumber is broken, and is much disturbed by dreams, she expresses her thoughts in an irregular and confused manner on her fingers; just as we should murmur, and mutter them indistinctly, in the like circumstances.

She now writes a fair, legible, square hand. Her sense of touch is also now so exquisite, that, having been acquainted with a person once, she can recognise him or her after the shortest interval.

The illness and death of one of the pupils of the institution taking place, her benevolent guardian availed himself of the opportunity of speaking of death; explained how all must die; spoke of the soul; of its immortality, and of the wisdom, power, and love of God. Repeated conversations on these subjects, beyond the mere feelings of shrinking at the thought of death itself, evidently produced considerable emotion and serious thoughtfulness; but we must leave Laura Bridgeman, and we leave her actively and happily engaged in her daily work.

Her diary tells how her days pass among

books and work; books in raised print, and neat sewing or knitting of her own; lessons in geography, history, and algebra, among other things; and about her walks, her visitors, the letters she receives and writes, and the news from all parts of the world that her friends report to her. But this is not all; she has herself become a teacher, and, in her turn, is conferring upon the blind, deaf, and dumb, the incalculable blessing she has herself received.

APPENDIX.

APPENDIX.

Case No. 1.

Tonbridge Wells, May 20th, 1854.

A bricklayer, aged 45, whilst working on the estate of the Earl of Abergavenny, met with an accident which occasioned the immediate loss of sight of the right eye; this in a few months was followed by that of the left. He now maintains his wife and four children by basket-making, which he understood before. Two years since was taught Moon's system by Miss C. W., and could read the 14th chapter of John, which was lent him; but, having hard work to supply the wants of his family, and unable to lay by money to purchase books, has ever since been without them, except the Gospel of St. John, given to him by a lady two years ago; but, being in the Roman letter, has been unable to make out a single word. A kind friend, at my request, has now supplied him with the first volume of the Psalms in Moon's type, for which he was most grateful. This man not strong, and his nervous system more or less shaken.

Case No. 2.

Southborough.

Husband and wife — Best — aged 43 and 36; both blind, having only one child, three years old.

The husband, when only 19, had inflammation of both eyes — maltreated — blindness. Taught rope-mat making at St. George's School in the Borough (reading was not then taught there); and soon after Mr. Frere, being at Tonbridge Wells, taught him his system — this is about twenty years ago. Seldom reads now; says, "that it worries his head after having done his daily work, and that his touch is not so susceptible as it was." He seems to be a good man, and depends on his wife reading to him. Gave him a lesson in Moon's alphabet, which he made out with ease, and, I have no doubt, will soon acquire it. Gave him the 14th chapter of John, and promised him, through a friend, other portions of the Bible. The wife is an intelligent and naturally clever woman; was born blind, sent to St. George's School at an early age, learnt Alston's system, and seems to read by it very well. She attends to all the domestic duties of the family, can thread her needle, cuts out her own clothes and those of her child, and makes them.

Case No. 3.

Sutton, Surrey, June 1st.

W. White, aged 71. Six years since, breaking stones, a sharp portion of flint entered the eye, and

blindness of that organ immediately, and of the other very soon, took place. Could read his Bible before his blindness, and delighted at the prospect of being able to do so again; gave him his first lesson, and found him an apt scholar. In a week's time acquired a thorough knowledge of his alphabet: he says, "I am in the habit of going to bed early, sir, and always awake at twelve, when I used to be restless and uncomfortable; and now, sir, I sit up in my bed, put on my coat, and take the book, which is a great comfort to me." Examining him, on a former visit, we found he understood his alphabet perfectly, spelt out his own name with the letters, and read correctly, "Open thou mine eyes," &c. Gave him the 14th chapter of John, and a friend took charge of his case.

This poor aged man is since dead. On a second visit to Ewell, on calling at his cottage, the daughter told us of his death, and that, to the last, his 14th chapter of John had been his companion and comfort, and was nearly worn out by constant use.

Case No. 4.

Epsom, Surrey.

Thomas Horsfold, called "Blind Tom," aged 63. Blind from birth; learnt basket-making at St. George's; enjoys moderate health, and is in the habit of carrying his baskets to Kingston for sale, and to the neighbouring towns, apparently with the greatest

facility. Received some instructions in Moon's alphabet some few years since, but the lady died before the man had acquired the ability to read. Gave him a lesson with the loose brass alphabet: his remark was, "Oh dear me, sir, this makes it easy indeed!" A kind friend has undertaken to follow up this case.

This and other cases prove the best way to teach the blind their letters, is to begin with the loose brass alphabet; next, the brass alphabet fixed on wood; and then the printed alphabet.

Case No. 5.

"Blind Boys," Ewell, Surrey, June.

Thomas and John, aged 64, brothers and twins, born blind, mat and basket-makers; learnt at St. George's School; uneducated as regards reading, but intelligent men. At first declined all attempts to learn to read, stating, that at the close of day they were exhausted by their work, and, still more so, by the fact that not being able, like other people, to write and keep accounts on paper, they were obliged to keep them in their heads. In all this I sympathised with them, assured them that the system of reading which I used was so simple and easy, that it would cost them little or no labour to acquire it; and that when this was accomplished, reading would tend to refresh rather than fatigue. Took the brass letter A; explained to them how, by alteration of position, it made four letters. They confessed "that

is very easy." It pleased them, and they accepted the promise of the clergyman of the place to give them a lesson now and then.

With persons born blind and not able to read, in teaching them their letters, the easiest way is to take the eight pieces, and show how, by alteration of position, they constitute the six and twenty letters of the alphabet. On the other hand, the best course to pursue with those not born blind, and who, previous to blindness, have been able to read, is, not to say anything about alteration of position, but to show and teach the changes which have been made in the original letters.

Case No. 6.

June 20th.

Sent to Mr. T. B., whom I met in the railway, a Moon's alphabet in print and brass letters, and also a copy of "Sight for the Blind" for his brother, whom he mentioned to me as being totally blind, and almost sunk into despondency from want of mental employment.

Case No. 7.

December, 1854.

Mr. W. J., between 25 and 30, foreman to some paper-mills in Kent, a few months since, in order to loosen the stopper of a quart bottle of fluid ammonia, immersed it in hot water; the bottle burst, the fluid

flew up into his face and eyes, the latter sloughed, and total blindness was the result.

Wrote to this party, and have to-day, the 4th of May, 1855, received the following letter, written in pencil, by his own hand :—

Darlington, April 28, 1855.

Sir, — Your very interesting letter, which was sent to me through Mr. B., duly came to hand with the reading materials. Before they came to hand, I had dull, desponding, and indolent feelings, with very dark prospects for this life; but when the means of improvement, comfort, and usefulness, were presented, they tended much to relieve my mind. I can now read very well, and had but little difficulty in learning. Mr. P. has kindly sent me a present of three volumes of your selection of hymns, which I often read with great pleasure. I have also, by the kindness of Mrs. F., of Manchester, been enabled to order the Psalms, but the bookseller here seems to have a difficulty in procuring them. Mr. B. would explain why the brass letters were not returned. I have the prospect of doing the same kindness to some one else that you have done to me. Your letter is written in ink; I should very much like to know if you have any apparatus for the purpose, or how you can tell when the pen is empty.

I remain,

Your obedient Servant,

W. J.

T. Bull, Esq. M.D.

Case No. 8.

7, Bedford Square, Brighton,
June 1st, 1855.

Find there is a blind gentleman lodging in this house. Introduced myself by a note. His name, Mr. W., of Clifton: became blind at 19 years of age (is now 40) from amaurosis. His attention has been directed to the embossed systems of reading, especially the Roman character. He confesses, however, he has not been able to acquire it, although his touch is so sensitive and perfect, that he is able to distinguish the class and order of the minutest shell; he having been, until very lately, a large collector. I explained to him Moon's system with the brass letters; he passed his finger over the printed characters. I gave him the 14th chapter of John, and requested five or ten minutes' attention to be given to this subject two or three times a day. On the morning of the third day after this, as he was leaving Brighton, he came into my room, told me that he had mastered the alphabet with the most perfect ease and celerity, and felt that he should have no difficulty in being able quickly to read; but, at the same time, observing that his knowledge of the Bible, and the privilege of being read to whenever he desired, made him less anxious to possess this power himself. I could not but remark how great the blessing of being able to read the word of God for

yourself, pondering upon it, and thus holding sweet communion alone with Him. Does not this case show the difficulty the adult experiences in learning to read by the Roman character?

THE END.

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